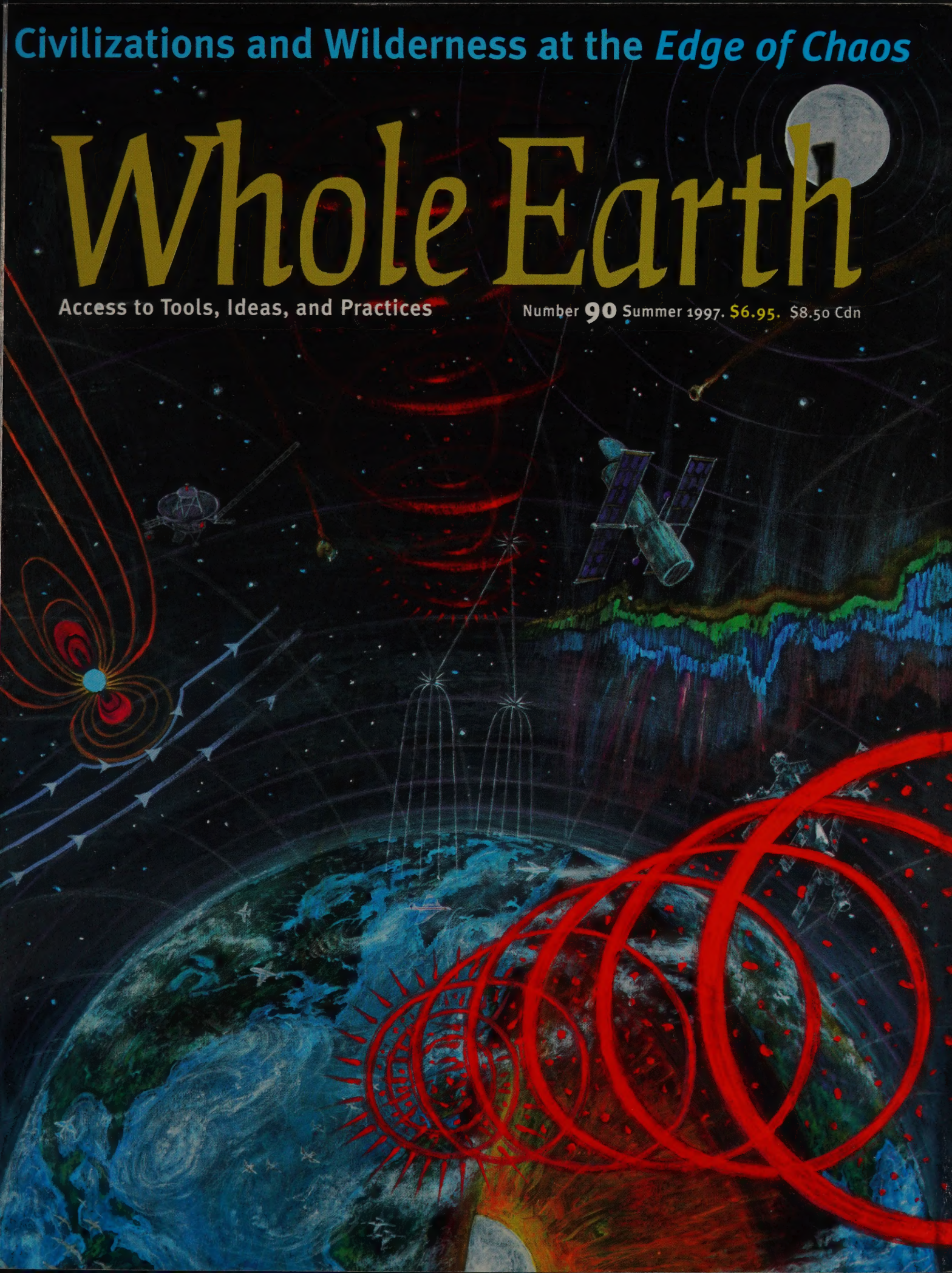


Civilizations and Wilderness at the *Edge of Chaos*

Whole Earth

Access to Tools, Ideas, and Practices

Number **90** Summer 1997. \$6.95. \$8.50 Cdn

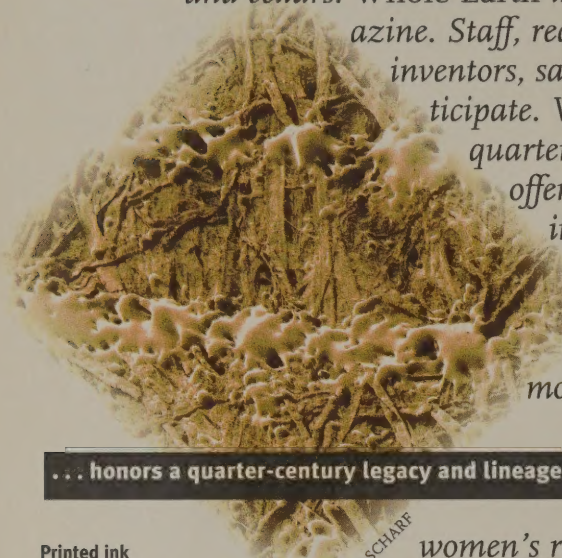


Whole Earth **Revived**

If you want a throw-away magazine, Whole Earth is not for you. We publish a magazine that readers have hoarded, prowled inside of, stored in garages and cellars. Whole Earth is a dialog as much as a mag-

Whole Earth points to bridges and barriers, driving forces and out-of-the-blue wildcards that will shape our lives, communities, bioregions, and planet . . .

azine. Staff, readers, citizens, scientists, writers, politicians, kids, inventors, savvy dabblers, clowns, even wildlife and our pets participate. We like readers to take at least three months (we're a quarterly) snooping around. We've changed a bit. Now offering a beginning section on just one topic. Actually, it's not so much a change but an expanded project: to provide stuff in greater depth and width than more formal schools and mainstream media (see pages 4 to 22 on fibers — wool, fiberglass, nylon, hemp, moral, bio-economic, and many more).



. . . honors a quarter-century legacy and lineage

Printed ink on paper, 200x.

DAVID SCHARF

We buck the trend toward niche publications. In fact, an astounding number of niche pubs — mountain climbing to windmills, women's resources to wired PCs, enviro-care to skateboards — all hatched in Whole Earth style. With so many specialist pubs and the internet, we're coevolving with new dreams, info needs and goings-out into the world. It's hard to keep us pigeon-holed. We have an insatiable appetite for connectivity, fuzzy categories, and op-art patterns. More like walking in the dappled woods and hearing a new bird song. You stop everything and look.

Since Whole Earth began, there are two new kids on the block: transnationals and non-governmental organizations or NGOs. Some NGOs have started substantial multi-national businesses (see our "yellow pages" on treefree products, page 16); some businesses have financed their own NGOs (e.g., the

Arthur Okamura's Cover

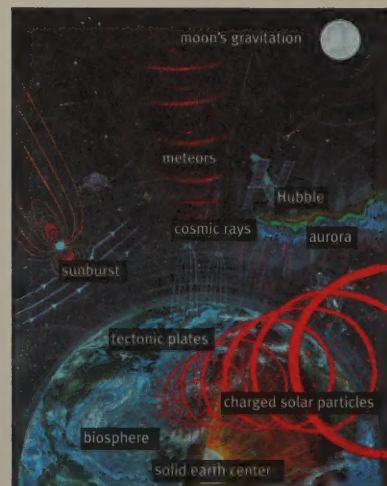
When Peter Warshall, my old friend, colleague, and collaborator, asked me to do the picture for the cover, I gladly jumped at the assignment: to depict some of the stuff, much of it invisible, that happens within the first 600 miles of space surrounding Earth, to show it from the inner core, then outward into cosmic space. After much looking at scientific resource books, I started a large pastel sketch, tackling the problem of proportions until Peter suggested

I let go of that concept and just do a painting. So here it is, á la Matta! — Arthur Okamura

I wanted to break NASA's "whole Earth" turquoise marble image, the image which galvanized the seventies, but now represents territory to franchise on bank and telecommunication cards. Time, I thought, to move into the invisible powers of Earth. When I have these kinds of thoughts I think of Arthur. Arthur did our very first issue

cover. Our revival cover renders the hidden and the atomic vivid, if not Fourth of July. Humbling forces include the moon's gravitational field, sunbursts, charged solar particles, gamma and cosmic rays, plate tectonics, our hot interior, and the magnetic field of our soiled core.

As the crowded Earth surface employs low orbits for communications and cities mass on faults, the Earth's invisible forces and humans must coevolve. — PW



ARTHUR OKAMURA

... evaluates tools, ideas, practices; offers labor-saving access and nitty-gritty experiences that sow the seeds for a long-term, viable planet

"wise use" movement); and some businesses, government agencies, and NGOs have formed

partnerships, sardonically dubbed "nightmare coalitions" (see cowboys and conservationists, page 70). Whole Earth sits at the crossroads with a great seat for reporting the emerging

patterns woven by citizen advocacy, business clout, and increasingly insecure governments

(and religions). We've had years of practice and developed a community that has already thought long and hard about the design of market systems and ecosystems, spirituality with technology, scientific and poetic discovery, portentous social innovations, and upending technologies.

Over the last quarter-century, we've learned that access to tools and ideas is not enough. Practice and experience refine handwork and wisdom, make it better, secure

a more subtle touch. So, we've changed our motto from "access to tools and ideas" to "access to ideas, tools, and practices." Our stories will highlight how people learn everything from the divine (see Vijaya Nagarajan's story on Tamil Nadu women, page 49) to better government ("Land of Found Friends," page 22).

Two litmus-tests of planetary health are cultural diversity and biodiversity. They've been thrown out of

whack by discordant systems — urban, farming, industrial, and trade. Many feel we hover at the edge of chaos: species, languages, and rich legacies disappear at an accelerating pace; cities search for a sense of dignity; rural communities ache for stability; industrialism overwhelms biospheric metabolism. Thus, our new front cover header (thanks to a discussion with Stewart Brand): "Civilizations and Wilderness at the Edge of Chaos."

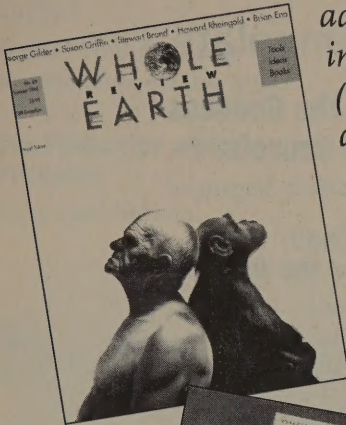
Ironically, we want our readers to be comfortable with "chaos," both within themselves and their surroundings. So, we created new domains out of our gut sense that citizens feel time is out of control: Tapestry and the Webs is our domain on community time textures; CoEvolution on dynamic interactive time; Homeplate on comfortable, curious time out; Eternity: Life 'n Love on those timeless sensual universes. Our forum and festivities offer you ideas, tools, and practices for what is worthwhile between life and death and forever after.

Bill Wasbell



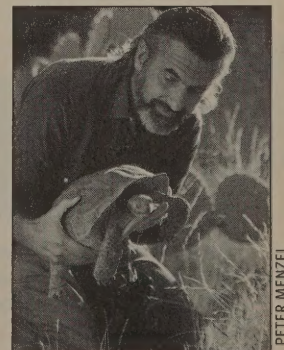
... stretches to encompass the whole Earth (and other universes)

200 million years ago, the landmasses of the whole earth were one.



... nurtures adventurous intellect, lots of laughs, and independent thought; explores connectivity and emerging patterns.

Editor (top); desert tortoise



PETER MENZEL

90 Whole Earth

Summer, 1997

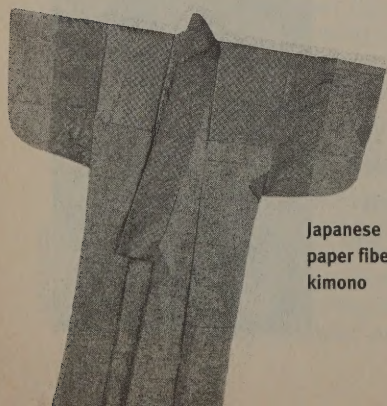


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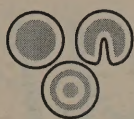
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Whole Earth

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The Tensile & the Tantric

Animal, plant, and petrochemical; market, ecological, and moral. Animal, plant, and petrochemical; market, ecological, and moral. Animal, plant, and petrochemical; market, ecological, and moral.

Choosing Fibers That Fit

Peter Warshall

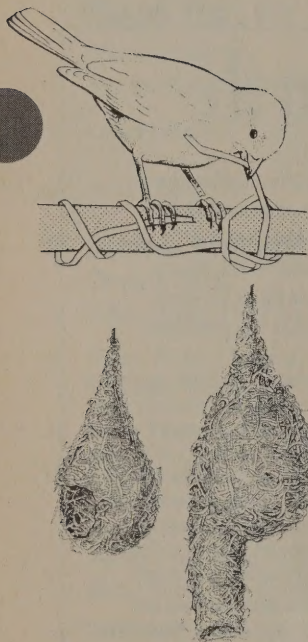
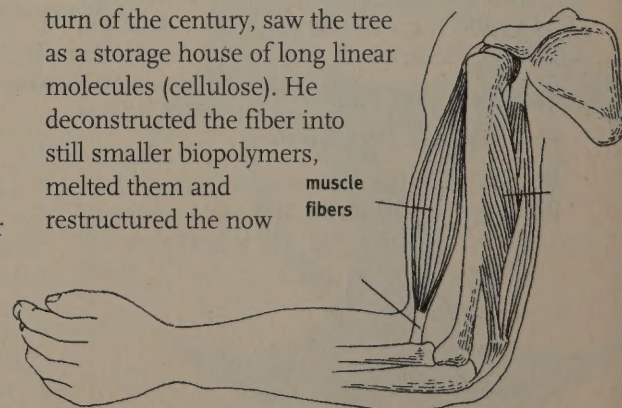
WE HAD NO INTENTION TO FEATURE FIBERS IN OUR revival issue. We intended to run a simple botanical on treefree paper. But our inventive (and humorous) contributors sent photos of "paper" made from cellulose fiber grown by bacteria; fiberglass bridges that helped save marbled murrelets; a futuristic horse blanket with fibers so sensitive they can adjust the blanket's insulation power to changing weather; hemp stone (a hemp-based plastic biopolymer) that can compete with petroleum-based fibers; and wallboard and trusses made from wastepaper pulps and soybean paste, urban wastewood, and agricultural waste straw. Fiber-thoughts flashed before us like draping silk, turned figurative, personal, almost obsessive. "What fibers are you wearing today?" "Oh, he needs moral fiber, not dietary." We were amazed that so little attention is paid to the longish, tough, and flexible filaments that connect nature to itself and to human life. Fiber frames the forms of all globular, amorphous protoplasm.

The wormy and spaghetti shapes of fibers provide a lot of surface area compared to their bulk. They can weave, knot, and twist to construct even stronger long-forms like braid, rope, and yarn. Tensile strength makes fibers ideal for nature's rigging. Sinew, tendons, and muscles hold our bodies together. Humanoids probably first rigged roots for burden baskets, and fibrous gut for slingshots. With agriculture, we humans converted sisal and hemp fiber to cordage. With petroleum, polyester fibers could be custom-designed for special uses like mountain climbing. No matter what the material, fibers equal rigging.

Fibers can also lie side-by-side or surround each other. Overlapping, fibers become "body shelters" like fur, fleece, and penguin feathers. With various glues, fibers form layers, plys,

sheets, and cylinders of great tensile strength like insect exoskeletons, shells, lizard scales, tree trunks, paper, and bias-belted tires. A few species construct fiber artifacts which act as "extended body shelters" like cocoons, weaver bird nests, thatch, caulking, rugs, and plywood roofs. Fiber is the medium of most messages: the muscles of the handsome hunk; the canvas of painting; the papyrus of Egyptian art; the gold threads of tapestry; the beauty of shedding bark on ancient trees.

Industrial inventions modified and fragmented our senses of fiber. The word now sings different tunes to different folks, a kind of frame-of-reference blues. An older timberman sees trees, for instance, as a repository of naturally glued wood fibers that can be cut into boards and studs. The more modern timberman sees the trees as thinner sheets like veneer, and smaller pieces like wood chips for plywood and oriented strand board. The paperman sees the tree glue as a problem, deconstructs the tree into wood chips, unglues their fibers; and reconstructs them into sheets of paper. The clothes manufacturer, at the turn of the century, saw the tree as a storage house of long linear molecules (cellulose). He deconstructed the fiber into still smaller biopolymers, melted them and restructured the now



The next 15 pages were prepared with the generous assistance of Daniel Imhoff (ECO), Carolyn Moran (Living Tree), Sue Hall (Strategic Environmental Associates), Jim L. Boyer (University of Minnesota), John Roulac (HEMPTECH), and Whole Earth editorial staff.

viscose tree into rayon and acetate thread.

To take off the commodity glasses — to see the forest for the polymers — has become increasingly a chore. Eyeball the ecostructure of trunks and branches that filigree the canopy, seeing in your mind's eye its fiber bundles. Visualize the leaf fibers supporting the weaker cells that gather light, breathe, and manufacture food, and the network of root fibers sucking up water in a corporate partnership with filamentous fungi, whose gossamer hyphal mesh extracts the soil nutrient. A dense and intricate mesh!

Fibers are also "strands of time," webbed together by repeated encounters. These "flex-time" fibers have been the hardest to "see." We draw them as spaghetti-like connectors in nutrient cycles. These "lines of time" are mental fibers, concealed and revealed, and serve as a great analogy, model, story, or school for understanding the intertexture of human relations. A typical North American indigenous story tells how the soft-haired, blind mole carries dark earth messages to the surface, relaying them to the flashy-haired perky squirrel who runs up the fibrous-barked elder spruce to the perched power of the feathered eagle who, in turn, liberates the message into the relatively fiber-free sky. The "yarn" ties animated threads of morality, natural history, humor, and philosophy to The People. Spiritual fiber-lattices are the material most citizens yearn to know and exercise.

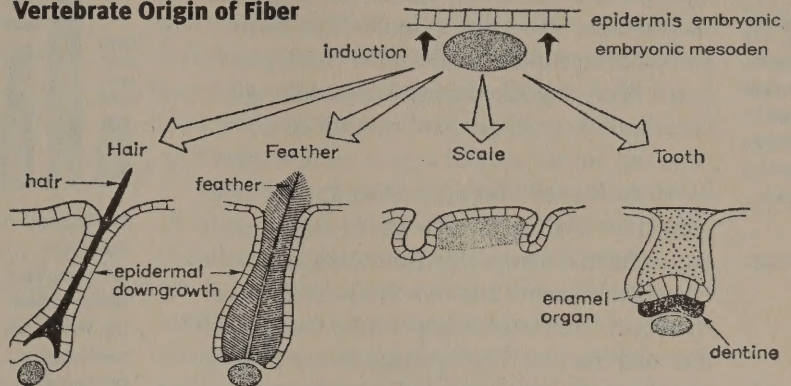
Unalienated Fibers

Juanita Ahil, an elderly O'odham (Papago) basket weaver taught me about unalienated fibers. She asked some Tucson friends for help. We piled into an old GMC, cruised the Sonoita hills until she pointed out a stand of vibrant yucca. Juanita would not harvest the leaves. She was too short and had too many memories of what happened to Indians "trespassing" onto ranches. I slipped under the four-strand barbed wire, wriggled my hand through the outer rosette of spiny leaves, gripped the sheath of young growth and popped out a fistful. Over the next two months, Juanita

high-graded the leaves, peeled off the outer edges, then stripped out the interior leaf fibers, dried them, twisted them into threads, wove them with the black fibers of Devil's Claw vine, sold the small, elegant black and white basket to a trader who, in turn, doubled or tripled the price, and sold it to a collector.

Basket-making, slow and deliberate, blends handwork with long conversations and long contemplations. Juanita chatted about how this basket compared to earlier baskets; problems with yucca fibers harvested at the wrong season or wrong place; about a dozen other plants that

Vertebrate Origin of Fiber

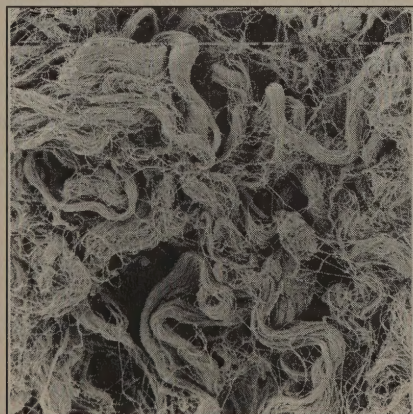
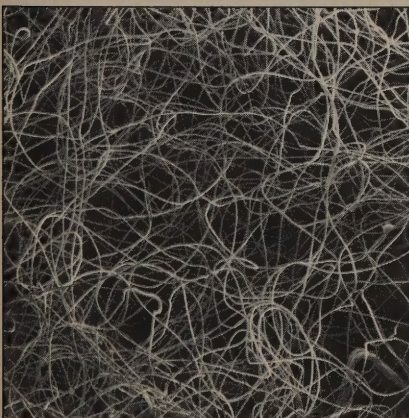


could be combined with yucca for a dozen other purposes. We joked about stealing the rancher's yucca, and remembered relatives who had been caught. I learned the dignity of handcraft and of the moods woven into the basket while reconstructing the deconstructed leaves. ("See that wrong knot. John came over and complained about our cousin's drinking.")

Juanita sweetly exposed my profound ignorance of the desert grasslands and my distance from the fingered feel, the sensual detail she honored in everyday life. I also lacked good origin stories: Where did the rubber, polyester and steel cords of the GMC's radials come from? Who was the rubber monster? The angel of steel? Who hated or had fun in their manufacture? What kind

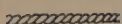
Fiber Facts:
We now consume five times more paper than in 1950.

Pulp will soon consume half the world's annual timber cut each year.

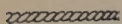


Left: Holofil (polyester fiber); Center: Human fibrin clotting blood, 3000x; Right: Paper towel fibers, 450X.

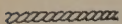
DAVID SCHARF



Fiber Facts:
The US uses 65% virgin pulp. Less than 1% is treefree.



Treefree pulp supplies 9% of global paper pulp. Asia produces 88% of the planet's treefree paper.



20 million tons of urban wastewood enter municipal waste dumps each year.



of straw was my tattered cowboy hat? What farm and hat weaver? With gringo regret, I wondered why I hadn't bought her basket (Juanita died a few years after). Her gift was learning to say grace to the tough yucca and all other fibers for their gifts of cloth, rigging, shelter, woven beauty and information services. She helped set my editorial policy: always include the tantric loom.

Fiber Futures

The market system for fibers is now global with petrochemical fibers (hydrocarbons) supplying the majority of textile, upholstery, and industrial cloth, cordage, and related products. Only paper and, in some places, building materials, remain somewhat immune from hydrocarbon competition. On the other hand, plant-based fibers (carbohydrates) may be having a comeback. A small group of committed citizens and businesses and a great creative spirit have rejuvenated fiber agriculture and forestry. New crops like kenaf, waste straw, sugar cane and industrial hemp; new cultivation techniques like organic cotton; and new products such as strawboard and treefree paper have found small but solid markets. Their promoters see treefree crops as more efficient, less harmful to both workers and the environment, supporting rural

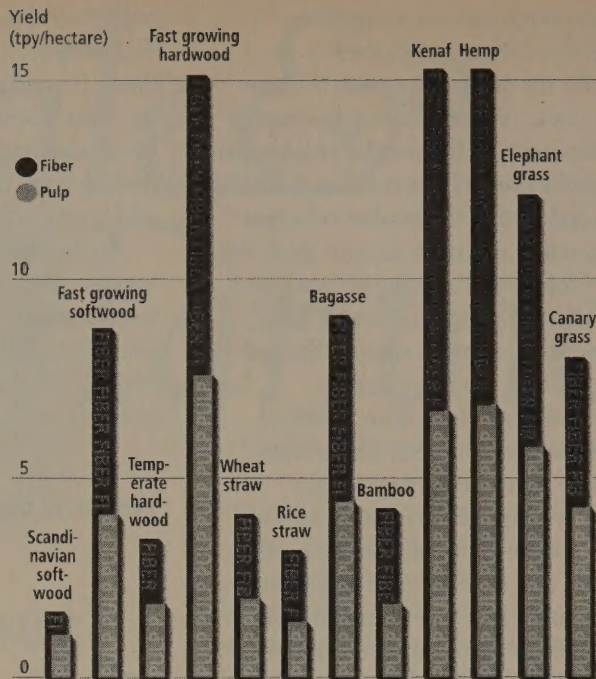


Chart shows the average annual yields* per year for papermaking fibers.
*tonnes/hectares

The US produces 65% of its pulp from timber harvesting. Worldwide, paper pulp comes from conifers (about 67%); plantations (about 25 to 35%); and tropical hardwoods (1%). Pulp demand will soon be responsible for half the world's annual timber cut each year. The Northern industrialized nations produce 83% of all paper products. They also consume ten times more paper per person (by weight) than the less industrialized South, and five times more paper per person.

Natural (Carbohydrate) Fibers

Forest

Tree fibers
Fruit fibers
(kapok, coconut husks)

Agriculture

Bast fibers (flax, hemp, ramie, shrubs)
Vascular fibers (cereal straws, bagasse, bamboo, esparto, reeds, pine needles)
Leaf fibers (abaca, sisal, etc.)

Livestock

Wools (sheep, goats, camels, angora rabbits)
Skins
Silk

Mineral

Asbestos
Glass
Aluminum

Ocean & Tidal Zones

Chitin
(crabs, lobsters)

Paper & cardboard products
(endless list)

Cellulose pulps & fibers

Engineered woodfiber products:
Particle boards,
Blended bricks

Biopolymer resins: Shelters
Regenerated natural fibers: Rayon, Acetates, Vegetable plastics, Apparel, Home furnishings, Medical, Tire cord, Fabrics, Fiberfill, Cigarette filters

Natural Fibers

Textiles,
Ropes, Rugs,
Velum skins

Fiberglass,
Fireproof fabrics,
Optical, metallic fibers

Chitosan
Filter fabrics
Wound-healing fabrics
Drug medium

BLEND WITH SYNTHETICS

economies and communities, decreasing the greenhouse impact of petrochemicals, and reducing the flight of farmers to the urban jungles. Moral fiber has rejoined the material.

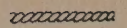
Arbokem, for instance, is a producer of straw fiber pulp and paper in Oregon. Al Wong, its founder, with persistent entrepreneurial spirit, organized farmers' coops to manage the waste straw supply chain. Each coop owns part of Arbokem to encourage community and loyalty. Farmers no longer burn the waste straw (reducing greenhouse gases) but leave 90% to prevent soil erosion and protect soil quality. Selling the remaining straw to Arbokem increases profit per acre by 25 to 50%. Al's patented agripulping process reduces the amount of capital needed for small mill pollution management. The effluent can be sold as fertilizer and the pulp is chlorine-free with minimal water use. He now competes with wood pulps and should soon undercut their price.

The spirited advocates of the new bio-economy have a complex and heroic path ahead. Phase One of Earth Day succeeded and is now over. The world is fully aware of the environment and its problems. Enviro issues are mainstream. Phase Two — the fusing of ecological knowledge into the market system — has just begun. The market

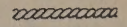
system remains amoral and unforgiving. The feedback loops to help save legacy forests or regenerate sheep-grazed grasslands have yet to be constructed.

Sally Fox had a perfect offering. She patented a cotton with green and brown bolls and she grew her cotton organically — avoiding all the soil erosion, toxic harms from both planting and dyeing colors, and water waste. But cotton gins refused her cotton, afraid her seed would contaminate ag biz seeds. Israel challenged her market share with its own green and brown cotton and she has had to sue to protect her patent. Sally found expert cloth makers and marketers. But her green and brown textiles lasted only a few years in a market that loves changes in color with each season. She will attempt to switch to sheets and towels which have less fickle color demands. Despite help from Esprit, Patagonia, and Ikea, she hovers near bankruptcy.

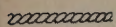
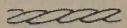
FoxFibre, her company, cobbled together just about as perfect an ag ecosystem as possible. Yet, the take home lessons are brutal: an enterprise can fail simply because cultural tastes glamorize variety in color. Consumers who want to buy feel-good offerings remain ill-informed about the ecological consequences of their choices. How does a consumer know that all green t-shirts or white



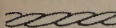
Fiber Facts:
50% of textile fibers are cotton, and 25% of all petrochemicals are used to grow it.



The US landfills one million pounds of textiles per day (mostly synthetic carpets and upholstery), and 200 million pounds of denim each year.



Fiber fact:
A 300 acre petrochemical plant equals 600,000 acres of cotton in terms of fiber production.



Synthetic (Hydrocarbon) Fibers

*Petroleum,
Natural Gas
& Asphalt*

Non cellulosic polymers
(by chemical synthesis)

Step-growth polymers

Polyamides: Nylon, Tire cord, Seat belts, Parachutes, Ropes, Strings, Nets, Sleeping bags, Tents, Doll hair	Polyesters: Easy-care fabrics, Pet containers, Polartec® fabrics, x-ray film, home furnishings, Fiberfill	Polyurethane: Spandex® & Lycra® fabrics, Thermal insulation, Soundproofing, Adhesives, Coatings
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Olefin:
Sportswear,
Insulation,
Roadbeds,
Upholstery,
Automotive interiors,
Cordage,
Cl-free medical items (extruded)

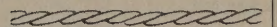
Chain-growth polymers

Polyacrylonitriles:
Acrylic fabrics,
Home furnishings,
Simulated furs,
Automotive fabrics,

Exotic Synthetics:
PBI:
Flame-resistant fabrics
Concrete reinforcement
Sulfar:
Reverse osmosis filter fabrics

Aramid®:
Gun-shot resistant fabrics, helmets, tires, sailcloth, ropes, marine & sports products

Fiber fact: all clothing About 95% of all US carpets and 45% of all home furnishings (sheets, drapes, upholstery and carpets) are petro-based fibers. 30% of all clothing are synthetics. A car needs 25 pounds of petrobased fiber in the tires and the inside trim and fabric.



cotton sheets are not the same? How can FoxFibre and her distributors change consumer decisions when the consequences occur in very distant places and in complicated economic and ecological networks?

FoxFibre is breaking the new paths that face all fiber lovers. The challenge of harmonizing market and ecosystem. Rayon gulps exorbitant process water gallonage and produces exorbitant effluents. Which manufactured fiber does least harm? Certain synthetic fibers release petro-based toxins during manufacture and disposal. Without a new frame for choice, the consumer wanders exhausted among ads and info-glut unable to find a simple, clear path to a new market of caring. We hope this magazine will help overcome some info-gaps and double-speak.

The paper products business is in worse shape. No one knows which forest was cut for the paper pulp that became your writing pad. Maybe the pulp came from a plantation or maybe from an old-growth temperate forest. No one knows if the tree cutting diced the forest into such small patches that a species could no longer survive. Did the cutting cause an irreversible change? There is hope (and we need lots of hope) that substituting for tree pulp will help save legacy forests. Kenaf, bagasse, hemp or waste straw could, in theory, reduce demand for tree pulp or other tree products. Treefree fiber crops can, in theory, be grown with less harmful, equally productive techniques, and some of the longer fibers in kenaf and hemp can greatly increase the tensile strength of recycled paper pulps. These crops can, in theory, revive rural economies in places like Kentucky, which is weaning itself from tobacco, or Thailand, where farmers look for more stable incomes.

Beyond theory is the harsh fact: harvesting, manufacturing, and consuming treefree products does not automatically protect old-growth or other forests. The cybernetics aren't there yet. The economic and societal fiber is wimpy. The forest products

industry doesn't stop harvesting just because treefree products enter the market. It finds other markets for trees such as building and construction, or it exports tree pulp to China, whose thirst is huge and growing. Or, it plays with the market system: begging more subsidies to lower its prices or underselling pulp to out-compete treefree growers during start-up. For the moment, the

only simple feedback loop I can conjure is: to take profits from the sales of treefree products and buy a forest to remove it from market predation.

Phase Two — the harmonizing and conjoining of market system to ecosystem — needs help. Like unwrapping a silk cocoon, there are miles of tough questions demanding to be yanked. The bottom line for ecosystems is biodiversity protection; for market systems it's financial profit; for rural communities it's income security (vs. income maximization). The "rules" for accounting, intergenerational equity, and discounting within a bio-economy

are embryonic. The rules to change rules (without extraordinary hardship or even bloodshed) reel wildy. Locked-in market constraints — rules to prevent harm to workers and consumers, or rules to prevent extinction — have yet to achieve moral, robust support within the business arena. We will try to use our pages to update and imagine the futures of the ecosystem/market system dialog.

Writing and writing paper comes to my hand with the whine of the computer printer and the fast pick-up of shiny sheets of sleek laser-paper.

A larger connectivity has been temporarily lost and a larger connectivity is being reborn.

The fingers that ignore the clay coating, the white wash, the fibrillation of treeflesh, also encourage the mind to ignore, in Paul Hawken's bons mots, the ecology of commerce. The ignorant hand and mind also forego the occasion to reconstruct a worthwhile and elegant tapestry called planet home. ☪

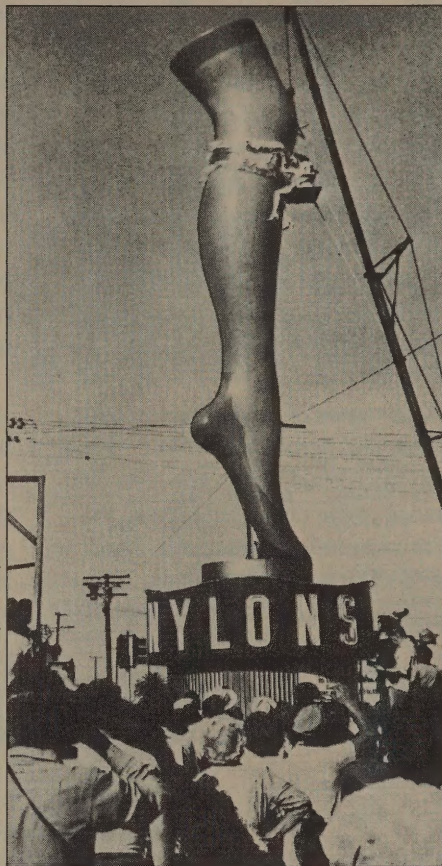
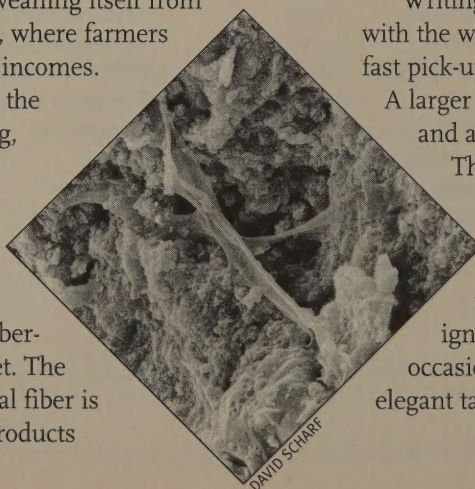
Driving Forces in the Bio-Economy

- ⊕ **Substitutions** of carbohydrates for hydrocarbons (e.g., ethanol for methanol, soy inks for dyes; treefree paper for wood pulp).
- ⊕ **Intensification** of carbohydrate farming of trees or treefree crops.
- ⊕ **Increased efficiency:** a goal of 50 to 75% increased efficiency in fiber lifecycle use.
- ⊕ **Recycling and re-use of biowastes** (e.g., leftover straw, construction wood).
- ⊕ **Deconsumption**, especially when the product is junkmail and frivolous packaging.
- ⊕ **Molecular re-engineering:** Turning petro-based fibers into a renewable resource.
- ⊕ **The price of oil.**

Below: Is your tea-bag petro-chemical plant fiber? Abaca, flax, kenaf? This is vinyon, a polyvinyl-chloride that softens in hot water.



Right: Murchison meteorite "fiber" from Mars.



MANUFACTURED FIBER FACT BOOK (SEE P. 20).

1939

The Briefest History of Fibers

Evolution of Fibrous Living Biopolymers, Filaments, and Fibers.

It all started with the origin of life (maybe 3.5 billion years ago). Much remains mysterious. Natural fibers come from highly evolved biochemical “building blocks” called monomers. Cellular engineering strung them together in simple or twisted ways to form linked chains (polymers) which, in turn, arranged themselves into baroque molecular nets, coils, braids, and yarns called fibrils. The fibrils took on the long cylindrical shape we call fibers.

Amino acids are the building blocks for fibrous proteins (silk, hair, wool, feathers, nails, scales, tendons, skin, hooves, and horns). Sugars are the building blocks for fibrous carbohydrates (the cellulose that structures plant walls, stems, trunks, leaves, husks, and cottons; the chitin that forms the bio-fabric of lobster, crab, insect, and spider exoskeletons). Ultimately, solar-powered fibers hold the planet’s living flesh together.

Phase 1, Deconstruction: The human hand unhinges tendons, pulls apart plant fibers, gathers lost wool.

Probably over 2 million years ago, we humanoids began breaking off, shredding, and peeling plant parts for shelter (frames and thatch), plaiting and rough weaving them into bags and burden baskets with headbands, tying them together as brushes and brooms, knotting fish and bird nets, and twisting threads. We unhinged tendons and shaped fibrous bones and antlers for awls and points. Skins with fur became early apparel. Over 8,000 years ago, we harvested wild goat and sheep wool caught in thorny bushes, and began the fabrication of felt. Early mobile communication media were on fibrous sheets from tanned skins (vellum) and bark.

Phase 2, Deconstruction: Fleecing the Sheep; Pulping the Woody Stems.

About 12,000 years ago, we began to take a more manipulative interest in reliable fiber production. As early as 7,000 years ago, we ingeniously cultivated and deconstructed cotton bolls



and started tight weaving. We domesticated wild goats and sheep and, rather than killing them for skins, began to harvest their wool annually by shearing. Increasingly, we reconstructed these fibers into felt, yarns, textiles,

and carpets. With domestication, the skin of unborn lambs became a prized writing surface. Peat and moss caulked northern shelters, became adobe bricks in the south. The first fiberfill may have been domesticated goose down for pillows. A period of handiwork and treasured crafts ensued.

By 5,000 BC, early “papermakers” sliced, mashed, and pounded flat the soft innards of plants like papyrus or the outer barks of trees. About 100 AD, the Chinese deconstructed mulberry bark, bamboo, flax, and other grass stems. Floating the separated fibers in water and reassembling them in sheets, true paper entered the communication arena. Recycling and substitution of materials began with old linens re-used as an ingredient of paper pulp.

Phase 3, More Deconstruction: Pulping the Super-Stem; Trees = Paper.

Hemp, esparto grass, rags, and other plant fibers could not keep up with the demand for paper. In 1840, after 200 years of whimsical gazing at those great fiber storage houses called trees, British papermakers began mechanically scraping tree flesh for paper pulp. Tree glues (lignin) gummed up the works. By the 1890s, a chemical method for dissolving the glues and separating tree fibers became economical. The European, and then American, paper industry transformed the old-growth temperate forests to chips. Clearcuts, the popular novel, and a paper-based administrative techno-bureaucracy blossomed. Non-wood fibers and linen/cotton rag recycling declined with short revivals during the world wars for rope and uniforms. Only two natural fibers — kapok and goose down — grew in the market as fiberfill for lifesavers and sleeping bags.

Phase 4, and More Deconstruction: Biopolymers from Pulps.

Not long after chemical engineers unglued wood chips into fibers, the fibers themselves were deconstructed. In a kind of industrial devolution, plant fiber cellulose, the building block of all plant fibers, was extracted and then melted into a resin. The resin,

From top: Fibrous old growth forest; Pomo burden basket with headband; Replica of early Anglo-Saxon thatch hut; Wood pulp mill.

forced through a showerhead with tiny holes (spinneret) and hardened into long filaments, could be cut into staple and used as yarn. Trees were now “biopolymer storage units.” By 1910, the cellulosic resins of cotton and wood pulp became “viscose rayon.” Rayon rapidly became the middle-class “silk” for blouses, “silk” stockings, and coat linings. Cellulose resins manufactured the celluloid of movies, the cellophane for kitchen wraps, and the rayon/rubber blend for car tires. The use of all other natural fibers, especially for textiles, began its long decline. Paper remained, and remains, strongly tree-based.

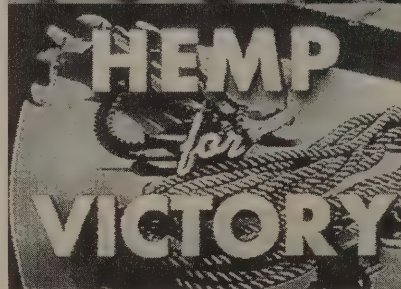
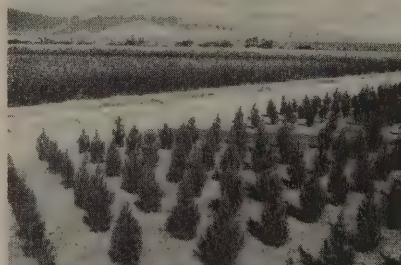
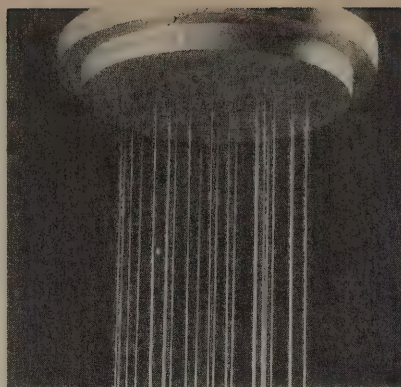
Phase 5, New Deconstruction: Cracking Petroleum for Fibers.

Viscose rayon prepared the way for petro-based synthetic fibers. Deconstructing plant matter to cellulose was not too many chemical engineering steps from “cracking” fossil fuels. (Cracking breaks raw petroleum’s big molecules into small ones.) By the first World War, petroleum, natural gas, and coal could be cracked down to small molecules (monomers) and then reconstructed into long filaments or sheets (the polymers). The filaments could be cut into staple and used like yarn.

In 1939, nylon became the rage, with every shapely leg in Hollywood showing it on screen. Plant- and wool-based fibers reeled under competition from acrylic, nylon, and polyester fiber carpets, sports shirts, slacks, sweaters, home furnishings, curtains, tires, hose, and rope. Sleeping bags and tents discovered synthetic fiberfills. Deck chairs and shingles took a piece of the furniture and building markets. Tree-based paper products remained immune from petrochemical attack.

Fibrous Crises: Paradigm Deconstruction.

Petrochemical fibers undoubtedly postponed the cutting of huge acreage of trees, as well as the clearing of land for cotton. By the mid-1960s, fibrous confusion entered the minds of citizens trying to balance ecosystems and market systems. The prophets of a paper-free electronic communications workplace have been false prophets; paper use per person increases with downloading, faxes, and photocopiers. How to de-consume? More and more legacy forests turn to paper pulp. How to protect the intact forests, clean



fabric blends. The fickle price of petroleum is now the wild card for both cotton and synthetic fiber production. Labor increasingly loses its importance to total technology. How to handle the globalized, petro-based, low-human-input industry?

Fiber Futures: Regenerating the Planet.

The petro- and the bio- will vie for market share in the next twenty years. New niches for “forgotten fibers” (kenaf, hemp, bagasse, cereal straws) may emerge to supplement wood chips in paper, textile, and building products. Organic cotton may have a comeback.

Further deconstruction, rearranging fiber-plant genes, seems inevitable. In twenty years, cellulose may be grown by bacteria. Paper would become an aquatic resource. Plants like rape seed have already been re-engineered to grow bio-plastic within their tissues. Paper industries may employ fungi to unglue plant pulp fibers, replacing chemicals. New short-fiber papers could replace the need for longer fibers from trees, hemp, and kenaf. New defibrillation techniques may make treefree fibers competitive with wood chips for low grade paper like newspapers. Membrane filtration will enable bio-plastics to compete with polyester.

Petrochemicals will hardly disappear within the next fifty years. Polymer re-engineering will make more petro-plastics recyclable. Petro-based fibers and extruded sheets will act like a renewable resource. Toxic fibers will drop from the market. Erasable plastic paper is a possibility. Read the paper, drop it in a bin where its washed of print, and recoat it with the new news. Mix-and-match blends of synthetics and natural fibers in textiles, tires, buildings, and paper will confuse our sense of clear-and-distinct categories. If all goes spectacularly well, a future Nobel Prize winner will figure out how pulp-based plant products, petro-based products, efficiency, recycling, new grazing practices, and deconsumption can outstrip population growth and increased demand, AND actually save our last legacy landscapes. ☺

our rivers, and still have paper fiber? Which fiber does least harm? The economic geography of fibers has been spun. Textiles, once a basic economic indicator in the North, flee South. Southern nations with petroleum can produce petro-fertilizers and pesticides for cotton and synthetic fibers and

From top, left to right: Spinneret showing synthetic fiber formation; Girl in rayon acetate dress; Cormorant chicks deformed by petrochemical effluents; Tree pulp plantations replacing forests; WW II ad promoting industrial hemp; Horse blanket with heat-sensitive fibers.

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patterns, instructions, and guides; all kinds of fabric, from Polartec to Ballistic Nylon to Recycled; great info on wickability, shells, insulation, zippers, web/cord, buckles, toggles, and snaps. Everything you need to sew your own slicker, journey jacket, backpack, horse blanket, snow-mitt . . . It's the place recommended by L.L. Bean and Patagonia for odd sizes and stuff they don't have. —PW

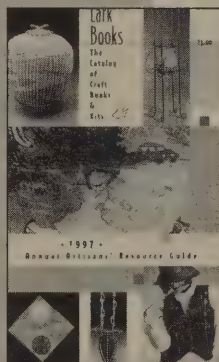


Lark Books

(The Catalog of Craft Books & Kits)

Brenda Sconyers, Director. 1997; 80 pp.
\$3. P.O. Box 2580, Asheville, NC 28802-2580; 800/284-3388.

The art of craft — who knew how big a part the mastery of fibers played? Fortunately for us, the folks at **Lark Books** have a grasp on it all. There are probably two dozen books and kits in their *Annual Artisans' Resource Guide* we wanted to review in this issue alone: *Pine Needle Basketry*, *The Fine Art of the Tin Can*, *Textile Techniques in Metal*, *Fiberarts* magazine, the *Make Paper, Make Art Kit* . . . Here is a wealth of really good material selected by Oregon College of Art and Craft faculty, written by pros for novices as well as masters, with the basic how-to and so much more. It's inspiration for the bookbinder, the basketweaver, the candlestick maker, and for those whose craft yens have yet to be discovered. —ET

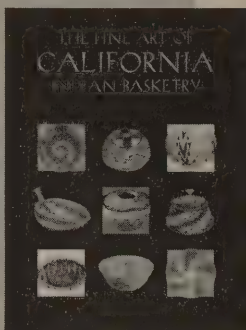


The Fine Art of California Indian Basketry

Brian Bibby. Crocker Art Museum/Heyday Books, 1996; 114 pp. \$20.

The First Californians fused art with function in the making of baskets, and the beauty and complexity of these everyday objects is a joy to behold. This is not your average art book, but rather a window into the culture of Native Californians, ancient and modern. Stories of the artists, their tribes, and their gathering grounds accompany each brilliant photograph. You will not believe these baskets! The colors are so rich, the shapes so deep, you'll want to give gifts, gratitude, and high praises to the hands that made them.

—Joanna Davis



“The Kumeyaay, formerly known as Diegueño, and later as Ipai-Tipai, maintain communities on both sides of the U.S.-Mexico border. Many still speak Kumeyaay as a first language and Spanish as a second. The traditional Kumeyaay homeland included both interior desert and coastal environments. People migrated throughout the year,

moving from the valley floor or canyon bottom to work their way gradually into the higher elevations of the mountains, following the ripening of various plant foods. Six varieties of acorns, as well as a variety of other plants, could be collected within the Kumeyaay habitat. The Kumeyaay used pottery for cooking and storage, as well as baskets for collecting and processing foods.

“Bertha Wright Mitchell was born in the old village of *tlet* in Colusa County. A significant portion of her childhood and adolescence was spent around her grandparents who spoke only the old Wintun language. Bertha's grandmother, Lyda Buck, and mother, Mollie Wright, were basketmakers. By the age of nine Bertha was making her own baskets. Her method of learning was observation. Bertha stated that she wasn't taught to weave but learned how by watching her mother. Bertha recalled, “I thought it was boring.” But eventually she “just felt like doing it. I just had it in me to do it.”



Fiber Society

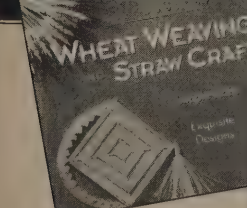
161 Sirrine Hall, School of Textiles,
Clemson University, Clemson, SC 29634;
803/656-5957, fax 803/656-5973.

Scientific research in fibers, fiber products, and fibrous materials.

Jenny Miller
(1842-1932),
Pomo basket weaver.



Appalachian White Oak
BASKETMAKING
Handing Down the Basket



Bamboo (*Bambusa* species) is a grass. It is the second most widely used non-wood fiber on the planet (six percent of global plant fiber production), whose bio-attributes just about equal those of pine. Bamboo has become the main non-wood fiber in India, Thailand, and China. (In Brazil the main one is sisal and in Argentina it is bagasse.) Like hemp, bamboo is easy to cultivate and is well known to farmers. Its wondrous versatility in building construction forces bamboo paper lovers to compete with builders for the stems. Not all bamboos are equal. Some have a low fiber content and low yield rate, but there are both warm temperate and tropical species that can become paper yielders.

The Environmental Bamboo Foundation:

Ubud, Bali, Indonesia; 62-361/974-02, fax 62-361/974-029; ebfbali@denpasar.wasantara.net.id.

Design and marketing of bamboo products; education and training in all aspects of bamboo production, from planting to marketing; and bamboo based agroforestry and watershed rehabilitation.



Esparto grass (*Stipa tanacissima*). From southern Spain and northern Africa, esparto grass is used for book papers and by specialty papermakers. The paper has premium formation, smoothness, and ink gloss. Best known for its porosity, the esparto leaf is a cylindrical, rolled-sheath leaf with strong dimensional stability.



With a finer fiber density of 15 million fibers per gram — the highest of any paper pulp, and twenty percent more dense than eucalyptus — a little esparto grass can go a long way. Its short fibers can best be extracted by chemically dissolving the lignin (the glue that must be “dissolved” to free up the individual fibers) and removing the silica.

Groups of nomadic Bedouin women harvest esparto grass, while the men bundle the grassy stalks. The rootstock remains. The grass could be harvested yearly but it isn't, because the tribes are nomadic and there's so much of it. Camels transport the grass across the desert to a collection area. It is left to dry in the intense sun for six months. This labor-intensive process provides much-needed jobs, supplemental income, and high retail prices.

Flax (*Linum usitatissimum*). The bast fiber (the outer layers of the stem) of textile flax is the source of elegant linen. Linen rags, cuttings, and threads have been used as the feedstock for papermaking for two thousand (or more) years. More recently the straw (whole stem) from linseed oil flax (flax cultivated for its seed) has been used for the manufacture of cigarette and other high-quality papers. Its high tear and tensile strength is superior to wood pulps. Like hemp and bamboo, flax yields multiple products. Paper has been a lower-value end product.

Fiber flax does best in temperate climates. It is more fickle than oilseed flax, and originally grew in areas with cool, moist springs, moderate summers, and rich soil (Belgium and Ireland). In 1843, Sarah Damon Owen brought flax seed west by ox cart from Kentucky, and was amazed that the fiber flax did so well. The flax industry boomed in Oregon, especially during World War II, when European nations stopped exporting.



International Linen Association: *c/o Gerli & Co., New York, NY; 212/685-0424*. Western European linen weavers and flax processors. Quarterly newsletter: *Linen Today*.



Hemp (*Cannabis sativa*). Ah! Infamous hemp. To be grown for THC or good fiber for textiles and ropes and maybe, in the future, plastic and hundreds of other co-products. They say it's hard to breed for both fiber and fun. Male plants are best for fiber, the virgin females for psychoactivity. Marijuana is cosmopolitan, but fiber hemp grows mostly in Europe (Hungary, Ukraine, and smaller amounts in France, Spain, and the UK) and south Asia. Despite rekindled interest, fiber hemp cultivation has been in long decline with shorter-term peaks during the world wars.

Easy to cultivate, the high-yield bast fiber is one of the longest of the non-wood fibers. It is superior to wood pulps and makes an ideal additive to recycled paper pulps to improve strength. Hemp paper is tough and durable and can be finished to a creamy, desirable sheet with the addition of some shorter, softer fiber such as esparto or cotton. About 0.005 percent of the world's paper (by volume) is hemp. Hemp fiber forms the sheeting for the Gutenberg Bible and the Declaration of Independence. In 1575, in the New World, at the first

paper mill outside Mexico City, a composite of hemp and cotton rags was the pulp of choice. US hemp paper production began in 1690. It was against the law for Colonial American farmers *not* to grow fiber hemp. Hemp was extracted by retting (soaking to separate the fiber). During the American Colonial period, masters forced slaves to enter retting basins (even in winter) as the humanoid mechanical separators. So many died of pneumonia that slave-retting became illegal. The whole stalk (bast plus the shorter inner fibers) cannot compete with wood pulp under present market conditions: hemp costs two-and-a-half times more per ton. A new chemi-mechanical process that replaces older, purely chemical processes, may lower costs and help hemp grab a share of the higher-quality printing- and writing-grade paper market.

Most “modern” nations prohibit fiber hemp cultivation. The DEA requires high fences with concertina wire and all-night lighting which penalizes hemp growers. Legal repression has given hemp fiber glamour and a larger market niche. Wearing hemp is also a bumper sticker saying, “Question Authority.” Two hundred firms sell hemp products with a projected legal market of \$15 to \$30 billion per year. Kentucky (looking for tobacco substitutes), Canada, Ukraine, Germany, and the Netherlands are all investigating markets. So far hemp has been labor-intensive. Mechanization of this unfamiliar (yet so familiar) crop needs research and development funds.

Hemp Industries Association: *Chandler Heights, AZ; 602/988-9355*. Best American access.

Plant Fibers



Abaca or Manila Hemp (*Musa textilis*). This leaf fiber, a member of the banana family, makes an extremely strong pulp with a high tear and tensile strength. Abaca is used for marine cordage, Japanese shoji screens, abrasive backing papers, and tea bags. It has potential for paper currency, Bibles, and cigarette papers. No fiber of equal strength and pliancy has been found. Grown in the Philippines by small landholders, its present drawbacks are low yield, high costs, and limited potential for a wider market as a low-end paper product. All manila hemp ropes should be recycled into paper.

Kenaf (*Hibiscus cannabiss*) is considered the latest plant fiber to enter the tree-free paper competition. The long bast fibers (similar to flax and hemp, and equivalent to pine) produce porous, high-strength paper with increased opacity and lowered sheet thickness. Definitely superior to wood fibers, kenaf can help reinforce the broken and short fibers of multiply-recycled waste paper. Kenaf yields many products and has been used as fuel, animal bedding, oil absorbent, and particle board for wall paneling.

The USDA started kenaf research thirty years ago. In 1981, the US International Paper Mill carried out a

commercial-scale newsprint run that demonstrated the feasibility of a kenaf-based publication. But the wood pulp industry has resisted retooling the mills. For a planned 35,000-acre kenaf operation in Texas that could significantly wedge into the paper market, \$360 million had to be raised for a new mill and harvesting equipment. Australia seriously considered kenaf for newsprint but could not arrange the financing and the income security that farmers required before they dared switch to another crop. A similar attempt failed in Thailand.

Less vulnerable to climatic whims and pests, kenaf needs lower inputs and management compared to other bioregional crops. This cotton/okra relative zooms from seed to fifteen feet in as little as five months, with low resins and silica — both favorable price considerations. Kenaf's drawback is its seasonality, requiring storage. Storage can lead to losses from fungi and rot, and complicates milling. Mills want an even flow of material for maximum efficiency.



Originally from the East Indies, kenaf (an annual) is now grown for paper fiber in Texas, Thailand, and China. Kenaf can be used to fabricate tissue paper, paperboard, or roofing felt. Texas produces kenaf interior moldings for cars. Start-up processing plants in

California, Louisiana, and New Mexico will make a major attempt to enter the paper market. Prices remain ten to fifteen percent higher than premium recycled papers.

International Kenaf Association: Ladonia, TX; 903/367-7216.

Cotton (*Gossypium* species), the premier textile fiber, enters the paper market as rags, textile scraps, and linters. Linters are a residue, the short fibers that adhere to the seed after ginning. These fibers can be cut from the seed in a series of passes through cutting blades ("first-cut linters," "mill run," "second-cut linters," etc.). Scraps are the major source of non-wood fibers for paper in the United States (about



0.3 percent of all paper pulp). Cotton produces a very high-quality paper, but has high production costs. It has a well-established market niche.

Cotton does best in warm temperate or tropical climates. The soft, fleecy fiber has been cultivated for 5,000 years. It is loved for, among other qualities, its washability — tougher than rayon, stronger wet than dry. Cotton is also moth-free, has great wickability, and a porous coolness. Synthetics stole part of the cotton market because cotton has low drapeability, wrinkles easily, shrinks, mildews, stains with sweat, and bleaches in sunlight.



Bagasse (*Saccharum officinarum*), another agricultural residue, is the crushed stalks of sugarcane after the sugar has been extracted. Sugarcane is a grass with high fiber yield, but its short fibers (closer to hardwoods or eucalyptus) and high lignin and silica content increase pulping costs. But India, Mexico, Indonesia, Thailand, Colombia, Brazil, Argentina, and South Africa all use bagasse for pulp production because of its fine newsprint qualities. Forty-five percent of all Mexican pulp comes from bagasse. Bagasse accounts for 12 percent of world production of non-wood fibers.

In the 1950s, the US led the world in designing the tools for bagasse pulping. Now, Cuba leads the way. The Cuba-9 Experimental Center studies the application of high-yield bagasse to small-scale pulp mills. The Cubans search for maximum efficiency: a more energy-efficient sugar mill that uses surplus bagasse for fuel; a pulp/paper mill with a low-cost pulping process; animal feed from "waste," and other by-products. Bagasse-based paper pulp competes with other uses such as hardboard and insulation board. Since sugarcane waste is also used for a fuel at sugar mills, a balance must be struck between energy and pulp. In India, sugar mills must be linked to paper mills by law which, at times, stimulates exports of coal to compensate for fuel losses.

Cereal crop straw is the leading non-wood fiber on the planet (forty-seven percent of global non-wood production). Wheat, rye, barley, oats, and rice offer a large straw supply and supplemental income for farmers in the production of low grade paper. China and India are leading recyclers. Straw has good printing qualities despite its short fiber length, which resembles hardwoods more than pines. Drawbacks include high silica content, low cellulose, weak fibers, and high transport costs compared to value. Straw pulps are always mixed with other fibers.

Straw as paper pulp competes with straw as a feedstock in other industries, e.g., straw-bale houses, agriboards, feed supplements, compost, "log" pellets, and chemicals manufacturing. Farmers cannot harvest all their straw without risking lowered soil fertility or erosion. In the US, Ninety percent remains to be plowed back into the soil and to control erosion.



In other regions, where straw is burned to clear the fields, the straw pulp alternative both increases income and lowers greenhouse gas emissions. New genetic short-stemmed wheat varieties have hurt the market for straw pulps and agriboard.

Ramie (*Boehmeria nivea*). Also called China Grass or filasse, ramie is a member of the nettle family. It is the plant that saves the princess condemned to weave nettles into coats



of mail in "The Swan," a Hans Christian Andersen fairy tale. This lustrous and super-smooth fiber is difficult to extract and clean. Used for high-class underwear and special threads as well as fancy papers, ramie awaits a technobreakthrough, cheap labor, or more princesses to lower costs. Native to tropical Asia.



Jute (*Corchorus species*) has very long, pale yellow fibers that are not particularly strong but important as a recycled paper fiber. Jute is widely employed for gunny sacks, burlap, twine, carpet, curtains, and more. The butt ends and waste scraps from jute rope and sacking join other fibers in paper production.

Burlap and Jute Association: c/o Malcolm E. Martin; New York, NY; 212/408-1040; fax 212/541-5369. Importers and brokers.

Other fibers

Not yet for the big time, other paper fibers have special importance.

Reeds of all types enter the paper market in China, and to a smaller extent in Europe. They offer a free by-product for constructed wetland sewage treatment.

Cornstalks, which comprise thirty percent of all US



plant waste fiber, have not been incorporated into paper.

China jute or Indian Mallow (*Abutilon Theophrasti*) is a lot like jute and now grows weed-like in the US. Adding it to paper would generate revenues from weed-control.

Paper mulberry bark with its soft, lustrous fibers has been used in Japan for paper lanterns, umbrellas, and writing paper.



So-called **rice paper** comes from other plants, not rice: *Tetrapanax payriferrum*, *Edgeworthia tomentosa*, and *Wickstroemia canescens* all transform into elegant fibrous sheets.

Papyrus, the root word of "paper," is the flattened interior of the plant's stem. India and Africa still produce small amounts.

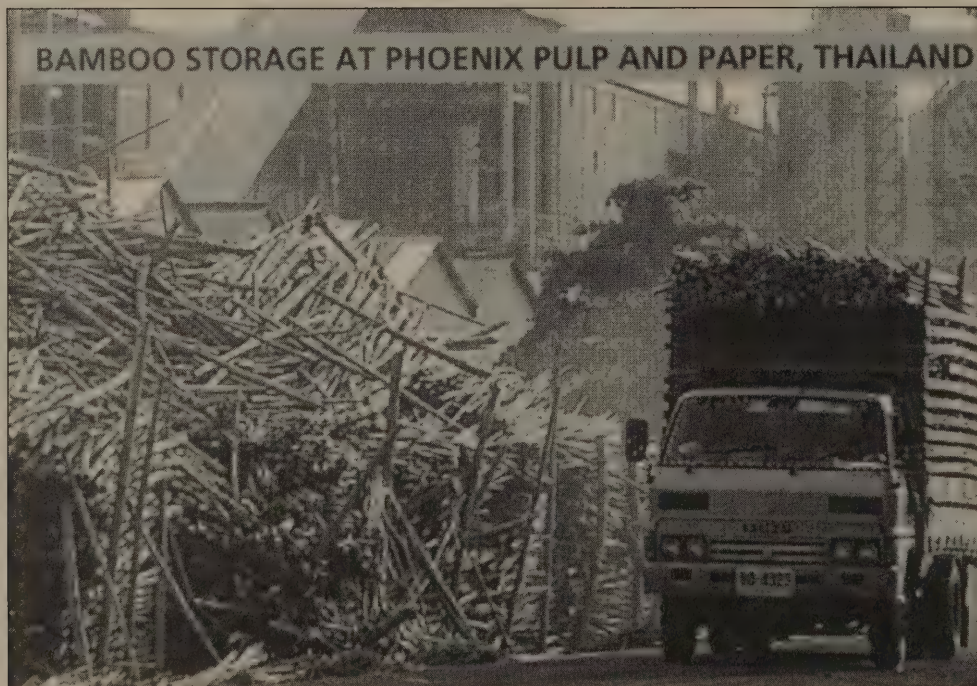


Papyrus paper is not what we call paper today (separated fibers reconstituted as sheets).

Sisal hemp or maguey (*Agave cantala*) grows on arid soils worldwide, with superior tear and tensile strength compared to wood. Because it does not displace important crops and can switch from paper to hard fiber cordage depending on price, its bright white sheets (requiring little bleach) make it a prime candidate for a pine/sisal combo paper. ☺



Above: A house in France built from compressed hemp.
Right: Photo from *The World of Fiber Processing* (see p. 17).



Carolyn Moran runs *Living Tree Paper Company* (see *Treefree Yellow Pages* p.15), a leading manufacturer and wholesaler of alternative fiber papers with hemp content. *Living Tree* has recently launched a new paper line called "Vanguard Hemp" with twenty-five percent hemp, twenty-five percent cotton, and fifty percent process chlorine free post-consumer waste content. This is the first company to commercially manufacture hemp paper in North America. Dedicated to bioregional and local community participation, Carolyn refuses to make a distinction between economic and spiritual enlightenment. Read all about it in *Talking Leaves*, the magazine of her *Deep Ecology and Education Project* (DEEP, 541/342-2974).

Illustrations by Terry Bell and M. Wong. Special thanks for locating art go to Dennis Breedlove and to Karren Elsbernd at the California Academy of Sciences Special Collections Library.

Treefree Paper

Major Activists

Conservatree

San Francisco, CA; 415/433-1000; fax 415/391-7890. Greenline is the most up-front newsletter tracking demand reduction, de-inking mills, peroxide bleaching, hypocrisy, laws and the latest news on paper-saving. Our favorite gadfly to lazy enviros, and sweet mom to corporations needing A's for effort. Membership for private sector is \$59; for nonprofits, \$39.

ReThink Paper

Earth Island Institute, San Francisco, CA; 415/788 3666; fax 414/788-7324; rtpinfo@igc.apc.org; www.earthisland.org/ei/paper/rtp.html. Publishes fact-sheets on ecological paper alternatives and economic constraints (performance standards, printing schedules, budget constraints). They're activist, from pulp to garbage pail to pulp to

Rainforest Action Network

San Francisco CA; 415/398-4404; fax 415/398-2732; lesswood@igc.apc.org. RAN remains the Paul Revere for environmentally sound paper practices, pushing Mitsubishi to think harder

and kids to study harder. Publishes *Cut Waste, Not Trees* — 70 pages of resources, articles, and action tips on alternative papers, building materials, and designs, as well as wood-use

reduction. For kids, their *Tree-Free Action Guide* includes making paper, organizing your school and enviro clubs, and writing letters to decision makers. Both pubs are



printed on 100 percent kenaf paper. Connected to **Wood Reduction Clearing House:** Washington, DC; 202/387-803; fax 202/234-5176; ned@tap.org.

Treefree Paper Suppliers: Mostly rolls, printing sheets, and/or stationery

Arbokem, Inc.

Vancouver, BC, Canada; 604/322-1317; fax 604/322-5865. Specialty is agricultural waste (i.e., wheat and rice straw).

Dancing Tree Recycled Paper and Printing

Berkeley, CA; 510/486-1616. Hemp, kenaf, garlic, bamboo, and high post-consumer waste.

Fox River Paper Company

Appleton, WI; 800/558-8327. Premium recycled and bamboo.

The Friendly Chameleon

Philadelphia, PA; 800/717-8242; fax 215/508-1699; chameleon@igc.apc.org. Wide range of treefree hemp content papers.

Green Field Paper Co.

San Diego, CA; 619/338-9432. Organic cotton, hemp, junk mail, and agricultural residues. Printing and writing paper.

Living Tree Paper Company

Eugene, OR; 800/309-2974; fax 541/687-7744, talk-leaves@igc.apc.org. North American-milled premium hemp content papers in printing and writing grades.

Neenah Printing.

Roswell, GA; 770/587-8754; fax 770/587-8709. 50 percent bagasse and 50 percent pre- or post-consumer wastepaper. Up to 120 lb. rolls and writing papers and envelopes.

PCW100

Port Washington, NY; 516/767-8021; pcw100@pcw100.com. Hemp, kenaf, high pcw blends.

Peacetree Paper and Printing

Portland, OR; 503/233-5821, fax 503/233 5821, www.teleport.com/~ptree. Kenaf, bamboo and recycled.

Vision Paper

Albuquerque, NM; 505/294-0293. A division of KP Products, Inc., it's the nation's largest supplier of kenaf paper.

NY Recycled Paper

New York, NY; 212/645 2300. Agricultural byproducts and post-consumer waste.

Mostly cut papers and stationery

Arbour

Ottawa, ONT, Canada; 613/567-3168. Flax, cotton, hemp, wheat pulp, and post-consumer.

Bandelier

Santa Fe, NM; 505/474-0900. Rice paper, plus more.

Dieu Donne Press & Paper

New York, NY; 212/226-0573. High archival quality hand-made papers for artistic use. They also have a retail shop.

Ecolution

Merryfield, VA; 800/769-HEMP. Hemp stationery.

Four Corners Paper Company

Scottsdale, AZ; 602/991-2320. Seaweed papers, and more.

Non-Paper Paper

Internet

Remember, the Internet is tree-free! If you don't download and print a hard copy too many times. Order from online directories. Use the paperless catalogs and phonebooks. Read virtual newspapers.

Nalgene Plastic Paper

Forestry Suppliers Inc., Jackson, MS; 800/647-5368. Almost indestructible — water-, rot-, light-, tear-, fray-, curl-resistant. ☺



Checking the bark laid out to wash and bleach in a weir in the hills of Mino, Japan. From *Washi: The World of Japanese Paper*, Sukey Hughes, Kodansha International.



Deconsume! Recycle!

American Reusable Textile Association

Largo, FL; 813/531-6698. Members include fiber producers and mills, fabricators, distributors and processors, laundry equipment and supplies manufacturers. Geared toward hospitals and industrial users. Reusable textile products are environmentally safer and less expensive than disposables. Brochure: *The Responsible Choice*.

Materials for the Future Foundation

San Francisco, CA; 415/561-6530. Mining biowaste as a material for community development. Job creation and waste diversion, not necessarily paper.

Stop Junk Mail Forever

Good Advice Press, Elizaville, NY; 914/758-1400.

Tells exactly how to get off, and stay off, every unwanted direct mail and telemarketing list. Your family receives thirty pounds of unsolicited mail each year. Direct mail-

ers gobble sixty-eight million trees per year and swallow up twenty-eight million gallons of ink. Half the received envelopes are never opened. We pay \$320 million incinerating, landfilling, and recycling. Read this, drop out of junk mail.

National Resources Defense Council

New York, NY; 212/727-2700; nrdcinfo@nrdc.org, www.nrdc.org. Best community development project to recycle urban waste wood.

Sheppard Envelope Company

Worcester, MA; 800/325-6622. "Boomerang" mailing system with sixty to seventy percent paper reduction.

Tension Envelope Company

Kansas City, MO; 816/471-3800. FedEx's Send-n-Return supplier.

Stu Heinecke Creative Services

Seattle, WA; 206/286-8668. Total use, no waste direct mailing.

Environmental Defense Fund Paper Task Force

New York, NY; 212/505-2100, 800/684-3322. Corporate paper recycling for beginners.

The Recycled Paper Coalition

Palo Alto, CA; 415/985-5568, rpc@igc.apc.org. Orienting offices and businesses toward politically correct enviro paper use.

WoodWise Consumer Initiative

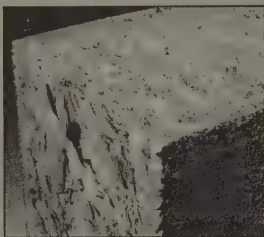
Co-op America, San Francisco, CA; 415/896-1580. Exposing the link between consumption and deforestation, and providing practical tactics and alternative sources that reduce wood consumption.

National Recycling Coalition

Washington, DC; 202/625-6406.

New Building and Construction Materials

Straw and Other Fibers



WheatBoard

PrimeBoard, Inc., Wahpeton, ND; 701/642-6026; fax 701/642-1352. Industrial grade particle board made from wheat straw. Seven to ten percent lighter than traditional particle board, sixty percent more moisture resistant. Targeted for use in furniture, cabinets, store fixtures, etc.

Agriboard Building System

Agriboard Industries, Fairfield, IA; 515/472-0363;

fax 515/472-0018. Heat-compressed wheat and rice straw panels — no toxic chemicals used in manufacture. Framing lumber for building construction reduced by up to ninety percent.

Easiboard/Easiwall

Pierce International, Inc. (US distributors for Stramit Industries), Englewood, CO; 303/792-0719, fax 303/799-6469. Single component, non-loadbearing domestic partitioning system (o.k., think drywall), made from highly compressed wheat, rye, rice, and barley straw with no synthetic additives. High acoustic and thermal insulation and high fire resistance.

Out on Bale

Tucson, AZ; 520/624-1673. Promotes development of straw bale construction.

Plyboo

Smith & Fong Company, San Francisco, CA; 415/285-8230. Laminated flooring, wall paneling, and counter-top material made of two thin layers of bamboo.

Eco Timber International

San Francisco, CA; 415/864-4900.

Sea Star Trading Co.

Newport, OR; 503/265-9616. Both are suppliers of high density lumber board made from coconut palm, for flooring, columns, and furniture.

Composites

Environ

Phenix Biocomposites, Inc., St. Peter, MN; 800/324-8187. Decorative surface material comprised of bio-based resin, cellulose fiber from recycled paper products, and color additives. Looks like natural stone when finished but cuts and fabricates like wood; twice as hard as red oak, half the weight of granite with better abrasion resistance. For interior, non-structural use only.

Resincore

Rodman Industries,

Marinette, WI; 715/735-9500. A formaldehyde-free particleboard composed of sawdust, phenolic resin, and wax, used for general interior construction.

Recycled Waste Wood and Other Products

Evanite Fiber Corporation

Corvallis, OR; 417/53-1211. Manufacturer of 1/8-1/4" panels (hardboard, peg-board) made from recycled urban waste, pallets, shelves, and industrial spools.

Gridcore Panel Products

Gridcore Systems International, Long Beach, CA; 562/901-1492, fax 562/901-1499.

Strong, lightweight, and formaldehyde-free honeycomb panels made from 100 percent post-consumer-waste paper and cardboard, as well as various agricultural fibers. Really cool stuff. Used for furniture, cabinets, stage sets, store fixtures, product exhibits, etc.



Homasote Co.

West Trenton, NJ; 609/883-3300. They take 250 to 350 tons of old newspaper a day and turn it into panels. That's about 70,000 tons of wastepaper a year. Uses range from carpet underlayment to structural roofing.

Re-Fiber Products

Wood Recycling, Inc., Woburn, MA; 617/937-0855. Various combinations of wood fiber and recycled newsprint paper mulch for use in hydraulic seeding.

Thermo-ply

Simplex Products, Adrian, MI; 517/263-8881. Fiberboards from 100 percent recycled cardboard boxes, office and mill waste, manufacturing scrap, etc. ☺



Center: EnviroPanel, from baked straw compressed between kraft paper.

All About Cotton
(A Fabric Dictionary & Swatchbook)

Julie Parker. 1993; 120 pp. \$17.95, \$29.95 with samples. Rain City Publishing, P.O. Box 15378, Seattle, WA 98115, 202/527-8778.

All about cotton? Close enough for me. Like Julie Parker's other Fabric Reference books (see pp. 18-19), this one explores the fiber's transformation to fabric, its properties, uses, history, assets, and limitations. The author has woven in enough trivia to satisfy the most ardent fiber-fact junkie (poplin was named for Avignon, the fourteenth-century "papal city"; Oxford cloth came from a Scottish mill whose other fabrics were named Cambridge, Harvard, and Yale). The book reviews forty-two different fabrics for individual characteristics, cost, wearability, and care. Best of all, the book can be ordered with swatches of the forty-two fabrics, to attach to the pages where they're discussed. A treat for the eyes, fingers, and understanding.

—MKS



Cotton and Other Textiles

Organic Cotton

Natural Cotton Colors, Inc.

Wickenburg, AZ; 520/684-7199; fax 520/684-7299. Brokers for Sally Fox's patented FoxFibre — organically grown cotton from cotton varieties that are genetically white, green, and brown. No dyes needed.

Cotton Plus, Ltd.

O'Donnell, TX; 806/439-6646, fax 888/439-6647. LaRhea Pepper is an organic cotton farmer and represents 20 other farmers in the Texas Organic Cotton Marketing Cooperative. Their bales are sold for use in clothes, home furnishings, personal hygiene products, even the little tufts of fluff inside the tops of medicine bottles. She will sell smaller quantities to individuals with a credit card.

Coyuchi

Point Reyes Station, CA; 415/663-8077; fax 415/663-8104; coyuchcn@nbn.com. Wholesale textile manufac-

turer selling fabric woven with certified organic cotton fibers. Also produces smaller product line of hats, throws, napkins, and kitchen towels, available for wholesale or retail.

Geotechnical Fabrics Report (\$35/year for 9 issues), *IFAI Bookstore Directory*, *Industrial Fabric Products Review* (\$30/year for 12 issues).

Hemp Textiles International

Bellingham, WA; 360/650-1684; fax 360/650-0523. Wholesaler and manufacturer of hemp textiles, yarns, etc. made from fibers imported directly from China. This company is reintroducing hemp to the mainstream textile market in the US with their own brands of fiber blends (hemp/organic cotton, hemp/recycled wool, hemp/recycled pop bottles).

The Navajo-Churro Sheep Association

Ojo Caliente, NM. Formed to preserve and promote this breed, whose wool is still prized by hand spinners for the open locks in an unsurpassed range of color. ☉

Other Textiles

American Textile Manufacturers Institute

Washington, DC; 202/862-0500; fax 202/862-0570. Represents mills manufacturing and processing cotton, man-made, wool, and silk textile products. Has 1200 volume textile library. Periodicals: *Textile Hi-Lights* (quarterly) and *Textile Trends* (weekly).

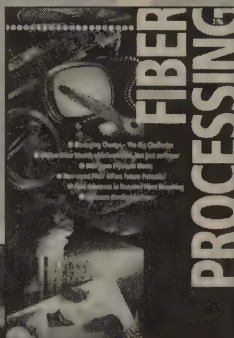
Industrial Fabrics Association International

St. Paul, MN; 800/225-4323; fax 612/222-8215. Fiber producers, weavers, coaters, laminators, and finishers. Manufacturers of canvas and industrial fabrics in thirty-six countries. Publications: *Fabrics and Architecture* (\$21/year for 12 issues),

The World of Fiber Processing

Hans Ahnberg, Editor. Sunds Defibrator Industries AB, S-851 94 Sundsvall, Sweden; 46 60-16 50 00; fax 46 60-16 55 00; www.sundsdefibrator.com.

A bi-annual magazine that overviews fiber processing developments in a number of industries.

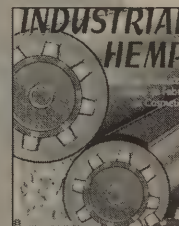


Industrial Hemp

(Practical Products — Paper to Fabric to Cosmetics)

John W. Roulac, Editor. 1995; 49 pp. \$4.95 (\$6.95 postpaid).

HEMPTECH: The Industrial Hemp Information Network, P.O. Box 1716, Sebastopol, CA 95473-1716; 805/646-4367, fax 805/646-7404, info@hemptech.com.



This fifty-page booklet will fit into your pocket even though it's crammed full of interesting facts about the world's most controversial fiber. Surprising factoids: the fenders on early Fords were made of hemp; hemp can be made into various food products for humans and domestic animals; in 1942, the US government made a film, entitled *Hemp for Victory*, to stimulate the wartime hemp industry.

—Dana Harmon

Far left: Bales of industrial hemp find a large market in France.



A Bestiary of Useful Fibers



Merino Sheep

Domesticated for 12,000 years, sheep wools, depending on the breed, either become apparels or carpets. Apparel wool is the most absorbent natural fiber, with great breathability, resistance to dirt, ability to hold dyes, wrinkle resistance, and warmth without weight. Great Britain, as a result of the Roman conquest, developed sixty breeds and still grazes thirty million sheep. With its former colonies, the United Kingdom became the center of sheep diversity and high quality apparel wools. Shrinkage, pilling, moths, weight when wet, and modern detergents present inconveniences compared to layering with some specialty petrochemical-based fabrics. Acrylics have replaced wool sweaters, carpets, blankets, and men's hosiery in many markets.

Sheep and goats have impacted vast areas of the planet. In Australia, they compete with some kangaroos. In the US, they encourage predator control of coyotes, eagles, and wolves. The shrublands of parts of California, Great Britain, Spain, Australia, Afghanistan, Iran, Turkey and others can best be viewed as sheep (goat) resistant landscapes with significant ecosystem degradation.



Mohair Goat

The long, extraordinarily lustrous fiber is stronger and more resilient than sheep wool, dyes the best of all fibers, and doesn't shrink. To improve fluffiness, it is blended with sheep wool or synthetics. A favorite of moths. One of the oldest textile fibers, Mohair goat domestication is believed to have centered in Turkey. Mohair goat herds have shaped the vegetative landscape and eroded hillslopes of many a watershed in Turkey, Arizona, New Mexico, Texas, South Africa, etc. Automobile upholstery was largely mohair until the end of World War II when petrochemical fibers stole the market. One of the few natural fibers with multiple end-uses, it can be blended into either apparel, upholstery, drapery, or rugs.



Cashmere Goat

From the Kashmir province of northern India, the cashmere goat remains quasi-domesticated, its supply subject to political troubles. A major eco-transformer of the high plateaus of India, Tibet, Mongolia, China, Iran, and Afghanistan. To complicate fleece gathering, the best fleeces come from the highest elevations (12,000 to 15,000 feet), with reduced quality as one descends. Isolated herders comb about four ounces per year from each goat. Cashmere fiber is a high altitude adaptation; ounce for ounce, it has more insulating power than any other natural fiber. Shawls, dressing gowns, sweaters, dresses, and long underwear have luxurious, silky, soft, and pliant texture, beautiful drape, and rare wrinkles.



Bactrian Camel

Softer, lighter in weight, warmer, more fragile, and more water repellent than sheep wool, the two-humped camel's hair is usually blended with wool for strength. Never wrinkles but does pill. The "llama analog" of Asia: part pack-animal, part fiber-giver. Beard hair becomes rugs and paint brushes. Soft undercoat becomes clothing. The coarser hairs are blended with wool to become poor man's cashmere. Rarely shorn, the wool is gathered during shedding season. Beware: Camel coats can be all sheep wool with camel-colored fibers. Camel coats should be camel fibers or you're being conned. The **Cashmere and Camel Hair Manufacturers Institute** (Boston, MA; 617/542-7481, fax 617/542-2199) promotes cashmere and camel hair products.

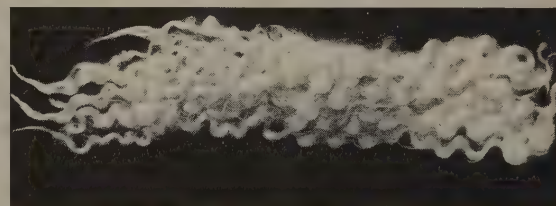


Alpaca & Llama

The two popular cameloid wools from South America: Alpaca is high-grade — softer, finer, stronger and more lustrous than sheep wool. Alpacas coevolved with high Andes grasses, limiting globalization compared to sheep. Their slippery fibers resist dyeing and weaving. They can be sheared only once every two years. But, alpaca fleece contains no waste wool ("kemp") as do other wool providers. The llama is larger (sometimes twice the weight). A multi-purpose cameloid, locals love them as pack animals with the perk of harvesting a coarser, weaker wool with lots of kemp. Not a high Andes specialist, llamas have begun to spread to the mountains of the United States.

Blue-faced Leicester curly locks, fleece—long, smooth, lustrous, for strong fabrics.

The American Wool Council (c/o American Sheep Industry Association, Englewood, CO; 303/771-3500, fax 303/771-8200) promotes use of wool and wool products. The Wool Bureau (New York, NY; 800/986-WOOL, fax 212/557-5985) is the US branch of the International Wool Secretariat. It is a promotional and technical group sponsored by wool growers of the Southern Hemisphere.



All About Silk

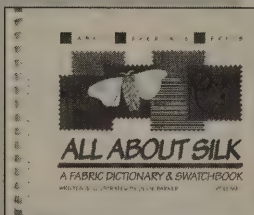
(A Fabric Dictionary & Swatchbook)

Julie Parker. 1992; 92 pp. \$14.95, \$29.95 with samples.

Rain City Publishing, P.O. Box 15378, Seattle, WA 98115, 202/527-8778.

See *All About Cotton* (p. 17).

This volume offers thirty-two silky samples. —MKS



“A single, unbroken cocoon yields from 1,600 feet to more than a mile of continuous filament, in contrast to the short fibers of cotton, wool, linen and other natural fibers.

Felt

(New Directions for an Ancient Craft)

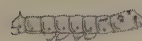
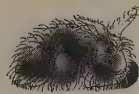
New York, NY; 212/505-2100, 800/684-3322.

Not those colored craft squares but the thick, dense fabric that has kept humanity protected for the last 8000 years. Color photos, sketches, and lucid text tell of felt's history, traditions, and creation with directions for felted jewelry, clothing, carpets, and yurts. I want this book. Thanks to my hair and large (some say “swelled”) head, I can't find hats. Sjöberg's hat-making instructions should solve that problem. —Wendy Chatley Green



“Agitation, i.e., pressure and movement, is required for felting to occur. Pressure forces the air out of the fleece so that the fibers can come into contact with one another. Movement, which in the beginning consists of careful massage and circular motions, allows the fibers to migrate to produce a thin, stretchable fabric.

“Jewelry that will be worn against the skin should be made from soft fiber such as the lamb's wool of fine-wool breeds. Jewelry can be shaped around the plastic-coated wire that is sold in spools in garden supply or hardware stores.



Vicuna

Very soft, very luxurious, twice as fine as Merino wool, and very rare 'cause the vicuna won't domesticate nor turn sheepish. They must be killed to be fleeced. Populations dropped from 400,000 to 15,000 before Peru protected them. The smallest South American cameloid (three feet at the shoulder), the vicuna yields only a few ounces of fleece per lifetime. The alluring chestnut to cinnamon fleece makes vicuna the most coveted apparel fiber on the planet. Beware of fakes!

Musk-Ox

Musk-ox are scarce and the wool comes from shedding in spring. Domesticated musk-ox are now combed or massaged to obtain more of the downy, soft, itch-free, shrink-free undercoat. Each musk-ox yields about five pounds a year. (It takes only a few ounces to make a scarf or hat.) Extremely durable and eight times warmer than most wools, qiviut is so clean that it needs no carding before spinning. Qiviut products are essentially value-added only (no raw musk-ox wool enters the market) from Oomingmak, Inc., an Eskimo cooperative in Anchorage and a few other locales. It is the dream bioregional fiber product.

Angora Rabbit

Probably bred near Ankara (Turkey), this specialty hair rabbit has been a French source of fiber since the early 1700s. (The Angora rabbit should not be confused with "Angora" from the Angora goat, also bred near Ankara.) The softest and finest of all specialty fibers, the rabbit's fur is plucked (or clipped) every few months. It is up to eight times warmer than wool for its weight. Usually blended with sheep wool or nylon because Angora rabbits' short fibers are weak and slippery to spin. Its static electric crackling once made it a long underwear and blanket favorite to treat aches and pains from arthritis. China produces the most blendable grade. France remains the leader in gourmet Angora.

Spider & Silkworm

Fiber-lovers suffer from arthropod envy. No one has made a fiber like spider silk: most stretchable before bursting, greatest tensile strength, and with the greatest resilience to strain. The less tough silk of the domestic silkworm is still lustrous, catching reflected light; strongest for its weight, stretchy, and resilient (a body clinger); breathing and warm. Imitated by nylon for strength and rayon for sheen, silk is unique in beauty and mystique. But, too much sunlight, sweat, or carpet beetle munching damages silken fabrics. Though rich in co-products (face powder additive, wigs, fishing line, surgical sutures), silk's price has narrowed its market niche to high-end items. The **International Silk Association** (c/o Gerli & Co., New York, NY; 212/213-1919, fax 212/683-2370) promotes use of silk in all forms.

Crab & Lobster

Chitin is the fiber of lobsters, crabs, and the hard exoskeleton of most insects. The frame of butterfly wings, chitin is a kind of long-chain sugar closely related to cellulose. During the "teneral" period, when the outer layers are shed so the arthropods can grow, the softer fabric-like qualities of chitin are more apparent.

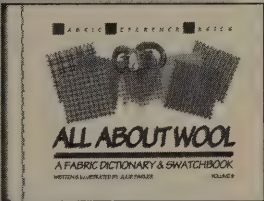
Currently used for bandages and burn dressings, it reduces scars and infection and improves healing. It's great for drug capsules. Cosmetic futures are bright because chitin clings non-allergically to skin. It can be used to help clarify wastewater, and, perhaps even increases rice harvests when used to coat seeds. An abundant recyclable material culled from the wastes of the shellfish industry, chitin (and its modified form, chitosan) needs improved processing and a method to insure a secure supply to compete in the fiber markets.

All About Wool
(A Fabric Dictionary & Swatchbook)

Julie Parker. 1996; 144 pp. \$25, \$45 with samples.

Rain City Publishing, P.O. Box 15378, Seattle, WA 98115, 202/527-8778.

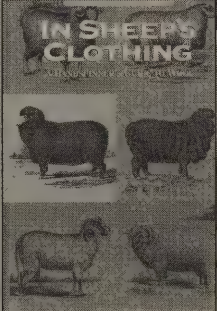
Same format as *All about Cotton* (p. 17), with thirty-five samples, from boiled wool to whipcord. —MKS



In Sheep's Clothing
(A Handspinner's Guide to Wool)

Nola Fournier & Jane Fournier. Interweave Press, 1995; 223 pp. \$24.95

A field guide to fleece: photos and descriptions of breeds of sheep and their wool. The book also untangles the physics of wool and yarn production — how fiber type and preparation determine the yarn produced, why breed, health, nutrition, and weather affect a fleece, and how to chose and handle fleece. Even the glossary taught me something: "suint" means "sheep perspiration." —Wendy Chatley Green




Felt boots from Koskenpään in Jämsä.

“ Each part of the fiber contributes to the characteristics that make wool so versatile. For example, the tiny overlapping scales behave just like shingles on a roof. The scales repel liquid, causing it to bead up and roll off the surface of the fabric. The inside of the fiber acts more like a sponge. The porous membrane allows wool to absorb moisture in the form of vapor, such as humidity or perspiration, which it stores in the hollow cells of the inner fiber.

“ Each fiber is coated with a layer of wool wax or grease. Most wool grease melts at between 110° and 120° F (43° and 49° C), so if your washing liquid is cooler, the grease will not be removed.

“ The fleece should fall freely, with adjacent locks loosely connected but moving independently. The fleece should not feel stiff. The natural groupings or locks of fibers, called staples, should separate easily. Avoid fleece that is matted (cotted) requiring that you wrench the staples apart.

Inventory of Synthetic Fibers

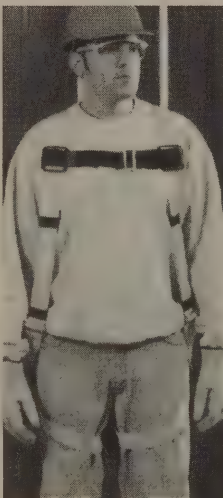
Rayon (1910)

Acetate (1924)

The grand quest to outdo the silkworm lead to rayon, Count Hilaire de Chardonnet's Paris sensation. These earliest synthetic fibers were still based on cotton or tree pulp cellulose ("biopolymers"). The pulp was deconstructed into a fluffy white cellulose, then turned into a viscose resin which was squeezed through spinnerets that resembled a shower head, and hardened as a "manufactured fiber from natural plants." Because of the Great War and other more profitable uses such as dope for airplane wings and celluloid for motion pictures, it took until 1924 for "artificial silk" to grab significant market share of hosiery, blouses, and linings. These "cellulosic fibers" have passed their peak as cheap petro-based fibers (nylon and polyester) and have displaced regenerated pulp fibers. Rayon manufacture requires large volumes of water, generating water pollution and waste treatment expenses. But, its high absorbency keeps it available for diapers, feminine hygiene products, cigarette filters, and surgical products.

Nylon (1939)

was the first non-cellulose fiber made directly from petrochemicals and/or coal. Its petro-family of polymers is called polyamides; its source petro-molecule is toluene. In 1931, Wallace Carothers presented his finding on long chains of small molecules. The miracle fiber (no more moths! no more mildew! exceptionally strong!) replaced silk parachutes, silk stockings, and sewing thread. Nylon entered the carpet and men's sport shirt markets. In World War II, nylon was an ingredient of paper money, tires, ropes, and tents. Now, nylon seat belts, windbreakers, sleeping bags, tarpaulins, curtains, etc. are everywhere.



Polyester (1953)

Its source monomers are xylene and ethylene which become the polymers polypropylene and polyethylene. Polyester fibers are lightweight and wash-and-wear, with longer fibers than nylon. As electric dryers saved women from clothes-line drudgery, polyester wrinkle-free fabrics further freed them from ironing. Polyester replaced rayon and nylon in many tire fabrics, and further reduced the percentage of textiles made from cotton. (At times, polyester is used in cotton blends.) Seatbelt safety rules sparked further production. A favorite for ropes and nets, floppy disk liners, and fiberfill for sleeping bags. Some of the polyesters contain chlorine, and these have become sources of harm to wildlife and humans during production, use, and disposal of the end product.

Acrylic (1950)

Modacrylic (1950) Entering the market as "wash-and-wear," polypropylene acrylics are best in blends with cotton. Acrylic was a major leap in time-saving for homemakers

and washer women. Its uneven fiber surface is unique, with outstanding wickability and resistance to sunlight. Modacrylics took over the "furry" textile market, including teddy bears, wigs, deep-pile coats, paint rollers, and fake sheep fleece. Acrylics ate away at the markets for wool carpets and blankets as well as sweaters.



Olefin (1959)

is a by-product of the breakdown ("cracking") of the large molecules of raw petroleum into smaller ones (propylene and ethylene gases). The most lightweight of synthetic fibers, olefin is super-comfortable, with exceptional wickability. Olefins are the best replacement for the chlorinated synthetic fibers and plastics used in medical paraphernalia. You'll also find them in sportswear, thermal underwear, cars, fabrics, carpets, and geotextiles.

Specialty fibers

Vinyon (1939)

is a polyvinyl chloride with all the health problems associated with chlorinated polymers. It can bind non-woven fibers and fabrics. Vinyon has been a substitute for plant-based filters in tea bags!

Saran (1941)

is another polyvinyl chloride. Its heavy fibers encourage use in public transport upholstery, deck chairs, and garden furniture.

Metallic (1946)

fibers are simply to look cool in swim suits or



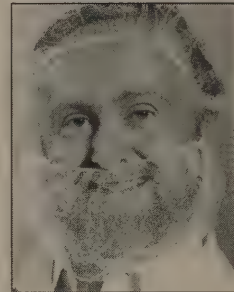
hot pants — made with plastic and metal foils.

Spandex (1959)

the stretchable fiber of bathing suits and sports clothes, is stronger and more durable than rubber, its major plant competitor.

Aramid (1961)

the fire-resistant polyamide, is a favorite



for aerospace and military; bullet-proof protective "armor" fabric, as well as an asbestos substitute.

PBI (1983)

also has no melting point and will not ignite; it is the love of astronauts and fire departments.

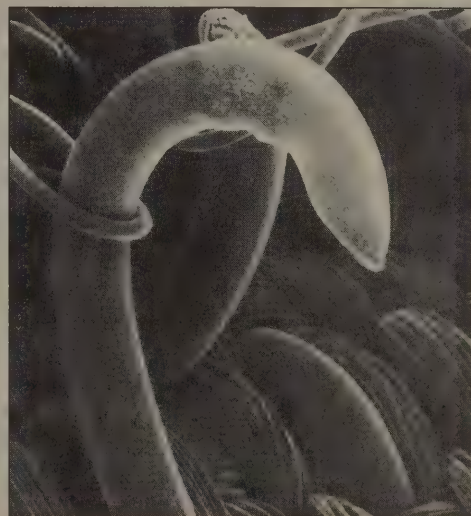
Sulfar (1983)

has special resistance to chemical and thermal attack; it has changed industry with filter fabrics for coal boilers, papermaker felts, electrical insulation, specialty membranes, gaskets, and packings. ⊕

American Fiber Manufacturers Association

Washington, DC;
202/296-6508, fax
202/296-3052.

Distributes video depicting production and end uses of manufactured fibers. Book: *Manufactured Fiber Fact Book*, Periodical: *Manufactured Fiber Guide*.



Second column: Weather-resistant, lightweight nylon harness.

Third column: Polyester apparel.

Fourth column: Specially constructed synthetic fibers. Triangular is for carpets.

Fifth column: Silica/aluminum fabric gloves with wool lining.

Sixth column: PBI/rayon blend protective hood (top). Flame resistant, 100 percent nylon hairnet and beard cover for bakers (bottom).

Left: Velcro.



Left: Fiber reinforced isopolyester bridge in Maui. One of a hundred in the world.

PRESTEK Bridge System

E.T. Techtonics, Inc., P.O. Box 40060, Philadelphia, PA 19106; 215/592-7620, 800/854-0957.

Mules and rigging and my ol' bro' from the Grand Canyon got together with hi-tech fiberglass. It was marbled murrelet country and no trees could be cut, no helicopters could drop steel spans for the bridge, and no heavy equipment could tear up the countryside. So Richard rigged his mules in tandem to carry lightweight fiberglass spans (actually a composite of fiber-reinforced plastic) into the back country, and tinker-toyed the second longest bridge of its kind in the world.

I saw his bridge in Maui along another Park Service beauty walk, and wondered about bridges at Malibu and Temescal Canyons (California) and another over Boulder Creek (Colorado). These composite bridges may not be organically harmonious with the dripping bamboo, but with the addition of a Nexus veil to the laminate, they can withstand the rain and moisture and UV. Get used to this mix of features — 1800s mule teams hauling glass fibers (or plant fibers) mixed with petro-based resins (or maybe hemp resins). Read all about it in *Composite News International* (619/755-5271; 71520.623@compuserve). —PW (Suggested by Richard Hanson.)

Center: Layering has replaced single-fiber fabrics. Layers can disperse moisture, reduce abrasion, stop wind, breathe, and be waterproof and tear resistant.

Tread (Twice) on Me: Closing the Carpet Fiber Loop

Waste floor carpet dumped yearly: 3.5 billion pounds. No manufacturer has a technique to cleanly separate worn fiber from its backing and recycle it into new fiber. In the meantime, the "greenest" carpet makers/recyclers are a couple of Georgia companies. (So far, these programs are available for commercial carpeting only).

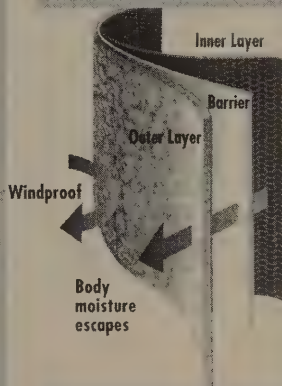
Collins & Aikman (Dalton, GA; 706/259-9711) promises to reclaim 100 percent of its worn-out carpet, as well as competitors' vinyl-backed carpeting, when customers replace their rug with a Collins & Aikman product. The "Infinity Initiative" converts the reclaimed material, along with C & A's own manufacturing waste, into new products, especially seventy-five percent recycled-content (and 100 percent recyclable) carpet backing.

The "Evergreen Lease" program of **Interface, Inc.** (La Grange, GA; 706/882-1891) recognizes that eighty percent of the wear occurs on twenty percent of the carpet. Interface leases modular tiles, taking responsibility for them through their lifetime and into their recycled afterlife. Interface maintains the carpet, replaces worn tiles, and reclaims replaced materials. Recycling costs are front-loaded, reducing the temptation to dump the carpet later. Per-year costs, higher for about the first seven years than for purchase or lease of similar-quality carpet, drop dramatically as customers replace only the worn tiles. Interface reuses its rug fibers in matting, automotive parts, and other products, with some burned in energy cogeneration and the fly ash captured and incorporated into carpet backing. Interface also connects clients with schools and other non-profits that can utilize used carpeting. —MKS

Patagonia PCR

Patagonia Mail Order, Inc., 8550 White Fir Street, P.O. Box 32-5, Reno, NV 89533-2050; 800/638-6464, 805/643-8616.

Plenty of people are wearing it, though they may not have a clue where it comes from. Most American consumers seem to know, or have heard something about, the polartec fleece apparel made from recycled polyethylene (PET) pop bottles (and the lesser-known source, x-ray film).



Patagonia is one of the leaders in the industry, spreading knowledge and making some bucks selling their trademark PCR (post consumer recycled) products.

They're re-shaping "typical" corporate behavior with serious research and commitment to "alternative" fiber sources for their high quality outdoor gear. (In 1996 they made the wholesale conversion to organic cotton; tags are made from agripulp paper; negotiations are in the works to print the famous mail order catalog on pcw recycled or treefree paper.)

Currently **Patagonia** is working on evolving their larger end-use applications of virgin polyester into recycled ECOspun fiber (supplied by Wellman, winner of one of the first "President's Awards for Sustainable Development"). The company is honest about their hopeful goal to eliminate the use of virgin polyester. Aesthetic and performance criteria remain their highest priority. They get it, and they're getting there. —ET

Home Composter

\$69 (\$78.50 postpaid). Smith & Hawken, 705 Stanford Center, Palo Alto, CA 94304; 415/321-0403, 800/776-3336, fax 415/321-2507.

Throw your scraps in the bin, water, and wait for supersoil — pretty ideal urban composting. No hauling fees! Anti-pest! Almost as cool as the miracle of compost is where this tub comes from — sixty percent post-consumer recycled plastic (your curbside pickup variety) and forty percent post-industrial. Perhaps one of these Jetsons days we'll have a backyard bin we can toss pop bottles into and pull composters from. —ET





Connectivity and emerging patterns. Spider webs, food-webs, Indra's net, the World Wide Web. Tapestry as the elegant handcraft; the figurative social metaphor. Kinship filigrees of blood ties, friendships, and alliances. Tools for open systems: community time textures.

Land of Found Friends

MUST FUTURE COMMUNITIES CREATE TASTEFUL FRIENDSHIPS OF VIRTUE AND LOVE, BEFORE THEY ATTEMPT GOOD WORKS?

**Conversation
among
Ivan Illich,
Jerry Brown,
and
Carl Mitcham**

Illich: During the late sixties I had a chance to give a dozen addresses to people who were concerned with education and schooling. I asked myself, since when are people born needy? In need, for instance, of education? Since when do we have to learn the language we speak by being taught by somebody? I wanted to find out where the idea came from that all over the world people have to be assembled in specific groups of not less than fifteen, otherwise it's not a class, not more than forty, otherwise they are underprivileged, for yearly, not less than 800 hours, otherwise they don't get enough, not more than 1,100 hours, otherwise it's considered a prison, for four-year periods by somebody else who has undergone this for a longer time. How did it come about that such a crazy process like schooling would become necessary? Then I realized that it was something like engineering people, that our society doesn't only produce artifact things, but artifact people. And that it doesn't do that by the content of the curriculum, but by getting them

through this ritual which makes them believe that learning happens as a result of being taught; that learning can be divided into separate tasks; that learning can be measured and pieces can be added one to the other; that learning provides value for the objects which then sell in the market.

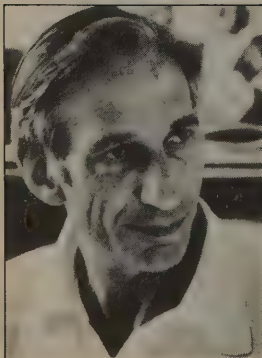
And it's true. The more expensive the schooling of a person, the more money he will make in the course of his life. This in spite of the certainty, from a social science point of view, that there's absolutely no relationship between the curriculum content and what people actually do satisfactorily for themselves or society in life. That we know, since that beautiful book by Ivar Berg, *The Great Training Robbery*. In the meantime, there are at least thirty or forty other studies, all of which show the same thing. The curricular content has absolutely no effect on how people perform. The latent function of schooling, that is, the hidden curriculum, which forms individuals into needy people who know that they have now satisfied a little bit of their needs for education, is much more important.

Not all people whom I knew as a young man had needs. We were hungry but we couldn't translate the hunger into a need for food stuff. We were hungry for a tortilla, for *comida*, not calories. The idea that people are born with needs, that needs can be translated into rights, that these rights can be translated into entitlements, is a development of the modern world and it's reasonable, it's acceptable, it's obvious only for people who have had some of their educational needs awakened or created, then satisfied, and then learned that they have less than others. Schooling, which we engage in and which supposedly creates equal opportunities, has become the unique, never-before-attempted way of dividing the whole

Ivan Illich's writing provokes slapped foreheads. "Why hasn't anyone else noticed that?" He has appeared regularly in *Whole Earth* since 1982, puncturing preconceptions about gender, schooling, medicine, language, the body, and the nature of "needs." His understanding of technologies, from alphabet to computer, is as subtle, and deep, as any we know. Born in Vienna, he currently divides his time among Mexico, Germany,

and the US. His latest book is *In the Vineyard of the Text*, (University of Chicago paperback, 1996).

Jerry Brown, governor of California from 1974 to 1982, practices community-level organizing through his Oakland-based organization, We the People. Carl Mitcham is professor at Penn State University. This article was excerpted with permission from Brown's radio program, also called, "We the People" (March 22, 1996, Pacifica Network).



society into classes. Everybody knows at which level of his twelve or sixteen years of schooling he has dropped out, and in addition knows what price tag is attached to the higher schooling he has gotten. It's a history of degrading the majority of people.

Brown: So you take somebody who's poor and you modernize the poverty by not only having a person that doesn't have a lot of material goods but now lacks the mental self-confidence that his father or grandfather had before that.

Illich: And I can create a world for him in which he constantly needs something: context-sensitive help. You know, when you are in front of a computer and when you are in that program and put in WordPerfect it tells you what help you need at the point you are at. We have created a world in which people constantly are grateful if they are taken by the hand to know how to use a knife or to use the coffee maker or how to go on from here in text composing.

Increasingly people live in an artifact and become artifacts themselves, feel satisfied, feel fit for that artifact insofar as they themselves have been manipulated. That is the reason why the two of us concern ourselves with the things in the world as they are, as determinants of the possibility of friendship, of being really face-to-face with each other.

Usually the people who do the philosophy of things, of artifacts, of technology, are concerned about what technology does to society. Inevitably modern technology has polarized society. It has polluted the environment. It has disabled very simple native abilities and made people dependent on objects.

Brown: Like an automobile.

Illich: An automobile which cuts out the use value from your feet. Like an automobile which makes the world inaccessible, when actually in Latin "automobile" means "using your feet to get somewhere." The automobile makes it unthinkable. I was recently told, "You're a liar!" when I said to somebody I walked down the spine of the Andes. Every Spaniard in the sixteenth, seventeenth century did that. The idea that somebody could just walk! He can jog perhaps in the morning,

but he can't walk anywhere! The world has become inaccessible because we drive there.

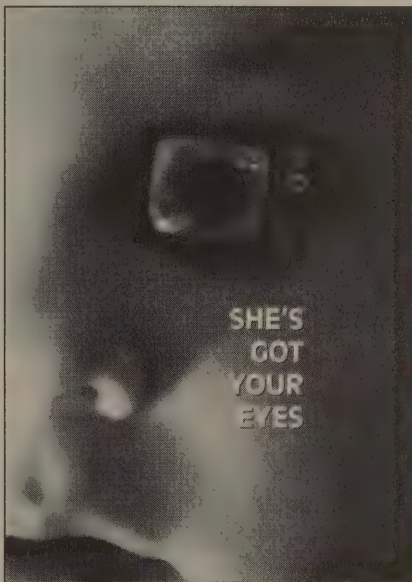
[Objects and artifacts] change who you are and, even more deeply, the way your senses work. Traditionally the gaze was conceived as a way of fingering, of touching. The old Greeks spoke about looking as a way of sending out my psychopodia, my soul's limbs, to touch your face and establish a relationship between the two of us. This relationship was called vision. Then, after Galileo, the idea developed that the eyes are receptors into which light brings something from the outside, keeping you separate from me even when I look at you. People began to conceive of their eyes as some kind of camera obscura. In our age people conceive of their eyes and actually use them as if they were part of a machinery. They speak about interface. Anybody who says to me, "I want to have an interface with you," I say,

"please go somewhere else, to a toilet or wherever you want, to a mirror." Anybody who says, "I want to communicate with you," I say, "Can't you talk? Can't you speak? Can't you recognize that there's a deep otherness between me and you, so deep that it would be offensive for me to be programmed in the same way you are."

Mitcham: As Ivan has pointed out, we are undergoing a fundamental transformation in what he referred to as "context-sensitive help" screens. We spend more time now in front of a

screen of one kind or another than we used to spend face to face with other humans beings — either the screen of the television set, the screen of the computer, the screen of my little digital clock right here in front of me. And we begin to experience the world, like when we're driving in a car the windshield becomes a kind of screen. The world becomes flattened to that screen.

Illich: I found at the Penn State Library a report on the Texas meeting of windshield technicians. Last year there were three volumes with some 870 contributions about how to engineer the windshield view which always makes you be where you're not yet. You're looking at what lies ahead, where you are not yet, like when you are with somebody and he always wants to know where we will be next week, where we will be the next hour, instead of being right here. It makes



Galileo developed the idea that the eyes are receptors into which light brings something from the outside, keeping you separate from me even when I look at you.



Hospitality requires a threshold over which I can lead you. TV, the Internet, newspapers, the idea of communication, abolished the walls between inside and outside, and therefore also the friendship, the possibility of leading somebody over the door.

facing each other increasingly more difficult because people can't detach themselves anymore from the idea that what we look at has been manipulated and programmed by somebody.

Until quite recently, all cultures which we know of were determined by the idea of hierarchy being natural, being a given. Hierarchy being something in which I live, which I have to learn to suffer. The [hierarchical] human condition can be that of the tropics or of a cold climate; of a very highly sophisticated Greek *politaea* with slavery or God knows what horrors, or of a monastery in the twelfth century.

People didn't speak of a "culture." The word didn't exist. But they spoke about the style of the art of suffering that they had *here* and not somewhere else. *Somewhere else* people knew how to suffer *that* human condition in their own style.

All this has been blown away.

The two of us haven't seen each other for a year now, and when we saw each other we bowed in front of each other. This very idea of bowing — you don't bow in front of a screen.

It's made impossible, or very difficult, for people who constantly see non-persons on the screen. I remember the day when that kid told me, "Yes, but I did see, this evening, Kennedy, and then President Bush, and then also E.T." For goodness sake, I am not something like them. I am somebody who wants to respect you, who wants to look up to you. This has been deeply undermined.

The world has lost our sense of proportionality, the sense that our friendship is not Jerry-plus-Ivan-and-some-interaction-between-them, as if we were two screens, two programs, two machines, but something which is beautiful in itself. That sense seems to me something that I would like to save. I can't do that in politics. I can't do that in public life. I can do that only by cultivating, when we get together around spaghetti and a glass of wine.

I am surrounded for the first time in my life with people over twenty-five who were born in the year, or shortly after the year, when I had the experience of what is called medically, in America, a "depression" of two weeks. I called it melancholia. I called it acedia, which is the inactivity which results from a man seeing how enormously diffi-

cult it is for a man to do the right thing. In good English: sloth. I had a period of very black sloth and didn't want to continue writing on that book *Tools for Conviviality*.

I understood what it meant to have to move into the world of the technological shell of which we spoke before. And now these people have been born in that age. I can speak differently to these people than I could speak to people of the sixties. In 1968, when I made people aware of the horrors inevitably effected by sickening medicine, because it creates more sick people than it can help, by stupefying education of which we just spoke, by time-consuming acceleration of traffic so that the majority of people have to spend many more hours in traffic jams in order to make a few people like you and me, and perhaps even

Mitcham, omnipresent on radio, that was our main concern. Today my main concern is in which way — and these people understand it — technology has devastated the road from one to the other, to friendship. Yet it is not our task to run out into the world to help others who are

less privileged than we are. Some people must do this and I must collaborate with it. The real task is to remove from my own mind the screen.

Brown: You had a focus on these larger societal issues, and now you're coming to focus in recent years on more immediate friendship. I'm very struck by the fact that you say computers communicate but people talk. I think the same thing is also true of the word "relationship." You can have a relationship among instruments or between instruments, but you can only have a friendship between two people or among human beings. I guess one of the obvious points about the modern sophisticated world would be the technological terms that invade our own understanding of ourselves and our immediate life.

In this book that Ivan has written, *In the Vineyard of the Text*, he called my attention to footnote 53, which is from the Latin, by Hugh of St. Victor, where he says love never ends:

To my dear brother Ronolfe, from Hugh, a sinner. Love never ends. When I first heard this I knew it was true. But now, dearest brother, I have the personal experience of fully knowing that love never ends. For I was a foreigner. I met you in a strange land. But that land was not really strange



GUATAMALA — WOMEN IN THE MATERIAL WORLD.

for I found friends there. I don't know whether I first made friends or was made one, but I found love there and I loved it and I could not tire of it for it was sweet to me and I filled my heart with it and was sad that my heart could hold so little. I could not take in all that there was but I took in as much as I could. I filled up all the space I had but I could not fit in all I found, so I accepted what I could and, weighed down with this precious gift, I didn't feel any burden because my full heart sustained me. And now, having made a long journey, I find my heart still warmed and none of the gift has been lost, for love never ends.

Illich: It's so beautiful. Today we would immediately say if a man writes to a man like that he must be a gay. But if he writes to a woman they would say what a marvelous sexual relationship. But do I need these alienating concepts? I want to just go back to a great rabbinical and also, as you see, monastic, Christian development beyond what the Greeks like Plato or Cicero already knew about friendship. That it is from your eye that I find myself. There's a little thing there. They called it pupilla, a "puppet" of myself which I can see in your eye. The black thing in your eye.

Pupil, puppet, person, eye. It is not my mirror. It is you making me the gift of that which Ivan is for you. That's the one who says "I" here. I'm purposely not saying, this is my person, this is my individuality, this is my ego. No. I'm saying this is the one who answers you here, whom you have given to him. This is how St. Hugh explains it here. This is how the rabbinical tradition explains it. That I cannot come to be fully human unless I have received myself as a gift and accepted myself as a gift of somebody who has, as we say today, distorted me the way you distorted me by loving me.

Now, friendship in the Greek tradition, in the Roman tradition, in the old tradition, was always viewed as the highest point which virtue can reach. Virtue, meaning here, "the habitual facility of doing the good thing," which is fostered by what the Greeks called *politaea*, political

life, community life. I know it was a political life in which I wouldn't have liked to participate, with the slaves around and with the women excluded, but I still have to go to Plato or to Cicero. They conceived of friendship as a supreme flowering, of the interaction which happens in a good political society. But I do not believe that friendship today can flower out, can come out, of political life. I do believe that if there is something like a political life to be, to remain for us, in this world of technology, then it begins with friendship.

Therefore my task is to cultivate disciplined, self-denying, careful, tasteful friendships. Mutual friendships always. I-and-you and, I hope, a third one, out of which perhaps community can grow. Because perhaps here we can find what the good is.

To make it short, while once friendship in our western tradition was the supreme flower of politics, I think that if community life exists at all today, it is in some way the consequence of friendship cultivated by each one who initiates it. This goes beyond anything which people usually talk about, saying each one of you is responsible for the friendships he/she can develop, because society will only be as good as the political result of these friendships. This is, of course, a challenge to the idea of democracy [as a necessary political context for friendships to bloom].

Brown: We started with a world where the good society creates virtue and virtue is the basis of friendship. Now it's reversed. Now we have to create the friendship and, in the context of the friendship, virtue is practiced and that might lead to a community which might lead to a society which might be a whole other kind of politics.

Mitcham: In some sense that's what you're trying to do, Jerry, with We the People. You've created a context, at your place in Oakland, in which what comes first is your friendship with other people and the friendship, the relations, between the people of that community. And out of that may grow some politics, but what I experienced when I visited We the People is primarily your hospitality and the hospitality of others there with you.

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—Jerry Brown



BRAZIL — WOMEN IN THE MATERIAL WORLD (SEE P.27).



I cannot come to be fully human unless I have received myself as a gift and accepted myself as a gift of somebody who has, as we say today, distorted me the way you distorted me by loving me.

Illich: Here is the right word: hospitality was a condition consequent on a good society in politics, politaea, and by now might be the starting point of politaea, of politics. But this is difficult because hospitality requires a threshold over which I can lead you. TV, the Internet, newspapers, the idea of communication, abolished the walls between inside and outside, and therefore also the friendship, the possibility of leading somebody over the door. Hospitality requires a table around which you can sit and if people get tired they can sleep. You have to belong to a subculture to say, we have a few mattresses here. Hospitality is deeply threatened by the idea of personality, of [educational] status. I do think that if I had to choose one word to which hope can be tied, it is hospitality. A practice of hospitality recovering threshold, table, patience, listening, and from there generating seedbeds for virtue and friendship on the one hand. On the other hand, radiating out for possible community, for rebirth of community.

Brown: I know you've written about the story of the Good Samaritan who is my neighbor and now we come up to this world of the needs, the rights, and the institution to take care of all that. Can you say a little bit about what institutionalization does, and then this reality that we're

discussing — of friendship, of love, of basing anything we might want to call community on that very immediate, unconstrained, uninstitutionalized way of being together?

Illich: Hospitality, that is, the readiness to accept somebody who is not from our hut, [across to] this side of our threshold, to this bed in here, seems to be, among the characteristics which anthropologists can identify, one of the most universal, if the not the most universal. But hospitality, wherever it appears, distinguishes between those who are Hellenes and those who are “blabberous,” barbarians. Hospitality primarily refers to Hellenes who believed there is an outside and an inside. Hospitality is not for humans in general. Then comes that most upsetting guy, Jesus of Nazareth, and by speaking about something extraordinarily great and showing it in example, he destroys something basic.

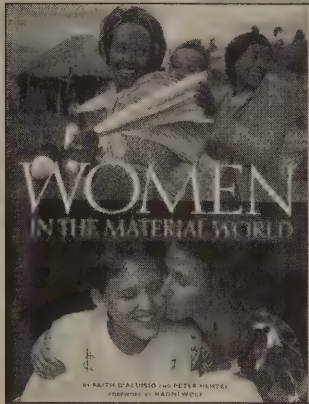
When they ask him, “Who is my neighbor?” he tells about a Jew beaten up in a holdup and a Palestinian (called a Samaritan, he came from Samaria, actually he's a Palestinian). First two Jews walk by and don't notice the beaten Jew. Then the Palestinian walks by, sees that Jew, takes him into his own arms, does what Hellenic hospitality does not obligate him to, and treats

him as a brother. This breaking of the limitations of hospitality to a small in-group, offering it to the broadest possible in-group, and saying, you determine who your guest is, might be taken as the key message of Christianity.

Then, in the year 300 and something, finally the Church got recognition. The bishops were made into something like magistrates. The first things those guys do, these new bishops, is create houses of hospitality, institutionalizing what was given to us as a vocation by Jesus, as a personal vocation, institutionalizing it, creating roofs, refuges, for foreigners. Immediately, very interesting, quite a few of the great Christian thinkers of that time, 1600 years ago (John Chrysostom is one), shout: "If you do that, if you institutionalize charity, if you make charity or hospitality into an act of a non-person, a community, Christians will cease to remain famous for what we are now famous for, for having always an extra mattress, a crust of old bread and a candle, for him who might knock at our door." But, for political reasons, the Church became, from the year 400 or 500 on, the main device for roughly a thousand years of proving that the State can be Christian by paying the Church to take care institutionally of small fractions of those who had needs, relieving the ordinary Christian household of the most uncomfortable duty of having a door, having a threshold open for him who might knock and whom I might not choose.

This is what I speak about as institutionalization of charity, the historical root of the idea of services, of the service economy. Now, I cannot imagine such a system being reformable, even though it might be your task and the task of courageous people whom I greatly admire. The impossible task they take on is to

work at its reform, at making the evils the service system carries with it as small as possible. What I would have chosen is to awaken in us the sense of what this Palestinian example meant. I can choose. I have to choose. I have to make my mind up whom I will take into my arms, to whom I will lose myself, whom I will treat as that vis-a-vis, that face into which I look, which I lovingly touch with my fingering gaze, from whom I accept being who I am as a gift. ⊕



Women in the Material World

Faith D'Aluisio and Peter Menzel, Sierra Club Books, 1996; 256 pp. \$35.

Inspired by Peter Menzel's *Material World: A Global Family Portrait* (WER 86:13), Faith D'Aluisio and Menzel continue chiseling at the myth that says mundane equals average. They have blended the talents of an exceptional team of photographers, researchers, journalists, and translators to create these vivid, intensely rich, and earnest portraits of individual women. Each one opens the door to a world of her own. Here's armchair psyche exploration at its very best. (The photos on pages 24-26 are from this book.) —ET

Slow

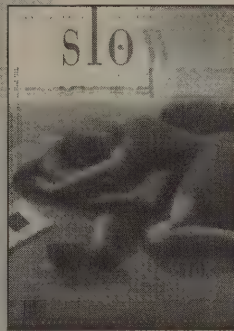
Carlo Petrini, Editor. English, German or Italian language editions. US \$50/year (4 issues). Slow, Servizio Abbonamenti, via Mendicita Istruita, 45, 12042 Bra (Cn), Italy; 718/392-7477, fax 718/392-0815.

The quarterly journal of the Slow Food Movement, **Slow** goes far beyond food. It is like a *Smithsonian* magazine of the senses, which includes the beautiful design and photography of the journal itself. Its Italian publishers produce the magazine in Italian, German, and English translations. By the end of the year they will add Spanish and French.

A listing of subjects on the spine of one issue gives an idea of the scope and bent of the journal: Rest, Sacred Meals, Pilgrimages, The Egg, Microbial Tales, Sweet Wine, The Regional Dish, Biding Time, Reading. **Slow** doesn't shout at you; it isn't trying to sell you anything. It extends a hand in the fellowship of savoring the life and culture of the world.

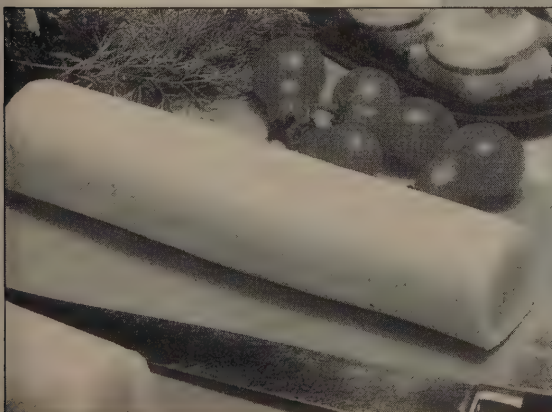
—MARY EVELY

"Freshness is an attribute of food which most people would agree is desirable. When defined, with the dictionary, as the opposite of "staleness", freshness has seemingly unimpeachable virtue. No wonder, then, that the siren calls of "freshly baked", "fresh today", "freshly squeezed", "oven fresh" etc. beckon us from every supermarket shelf. . . . The rate of staling (the hardening of starch accompanied by evaporation of moisture) is significant: some breads (not only the traditional baguette) can be leather-crust and powder-crumbed with



in hours of being sold "fresh" from the oven. . . . Does it matter how we define freshness? To the extent that its constant promotion as a sales benefit is driven by the imperatives of competition, stock rotation, distribution chains etc. — in short by the desire to maximize profit — it clearly matters to the bread manufacturers. But the cosmetically alluring "hot" bread which tastes of nothing and turns to rusk in a day may amount to a con trick.

Far left: The "long egg," created in Denmark through mechanical reconstitution of deep-frozen and vacuum-packaged hard-boiled eggs, equals the nutritional content of six eggs, with no waste.



I was thirteen when Danny Sahib moved into our building in Flushing. That was his street name, but my Aunt Lini still called him Dinesh, the name he'd landed with. He was about twenty, a Dogra boy from Simla with slicked-back hair and coppery skin. If he'd worked on his body language, he could have passed for Mexican, which might have been useful. Hispanics are taken more seriously, in certain lines of business, than Indians. But I don't want to give the wrong impression about Danny. He wasn't an enforcer, he was a charmer. No one was afraid of him; he was a merchant of opportunity. I got to know him because he was always into ghetto scams that needed junior high boys like me to pull them off.

He didn't have parents, at least none that he talked about, and he boasted he'd been on his own since he was six. I admired that, I wished I could escape my family, such as it was. My parents had been bounced from Uganda by Idi Amin, and then barred from England by some parliamentary trickery. Mother's sister — Aunt Lini — sponsored us in the States. I don't remember Africa at all, but my father could never forget that we'd once had servants and two Mercedes-Benzes. He sat around Lini's house moaning about the good old days and grumbling about how hard life in America was until finally the women

organized a coup and chucked him out. My mother sold papers in the subway kiosks, twelve hours a day, seven days a week. Last I heard, my father was living with a Trinidad woman in Philadelphia, but we haven't seen him or talked about him for years. So in Danny's mind I was an orphan, like him.

He wasn't into the big-money stuff like drugs. He was a hustler, nothing more. He used to boast that he knew some guys, Nepalese and Pakistanis, who could supply him with anything — but we figured that was just talk. He started out with bets and scalping tickets for Lata Mangeshkar or Mithun Chakravorty concerts at Madison Square Garden. Later he fixed beauty contests and then discovered the marriage racket.

Danny took out ads in papers in India promising "guaranteed Permanent Resident status in the U.S." to grooms willing to proxy-marry American girls of Indian origin. He arranged quite a few. The brides and grooms didn't have to live with each other, or even meet or see each other. Sometimes the "brides" were smooth-skinned boys from the neighborhood. He used to audition his brides in our apartment and coach them — especially the boys — on keeping their faces low, their saris high, and their arms as glazed and smooth as caramel. The immigration inspectors never suspected a thing. I never understood why young men would pay a lot of money — I think the going rate was fifty thousand rupees — to come here. Maybe if I remembered the old country I might feel different. I've never even visited India.

Flushing was full of greedy women. I never met one who would turn down gold or a fling with the money market. The streets were lousy with gold merchants, more gold emporia than pizza parlors.

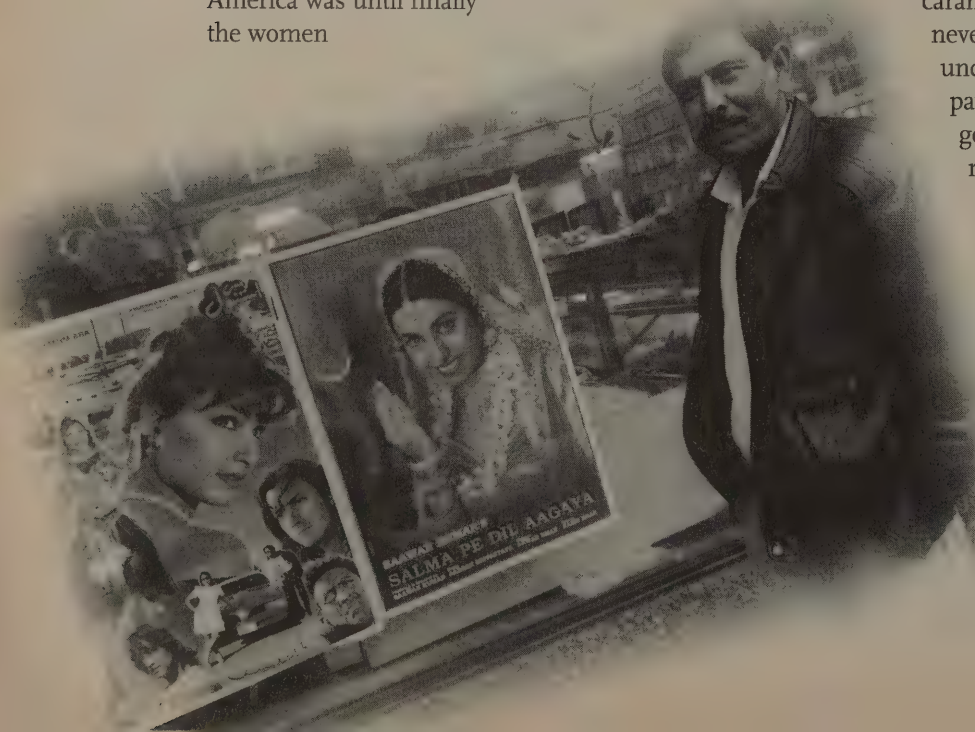
Melt down the hoarded gold of Jackson Heights

Danny's Girls

A Story by
Bharati Mukherjee

Photographs by Josh Schwartz

28



and you could plate the Queensboro Bridge. My first job for Danny Sahib was to approach the daughters in my building for bride volunteers and a fifty buck fee, and then with my sweet, innocent face, sign a hundred dollar contract with their mothers.

Then Danny Sahib saw he was thinking small. The real money wasn't in rupees and bringing poor saps over. It was in selling docile Indian girls to hard-up Americans for real bucks. An Old World wife who knew her place and would breed like crazy was worth at least twenty thousand dollars. To sweeten the deal and get some good-looking girls for his catalogues, Danny promised to send part of the fee back to India. No one in India could even imagine *getting* money for the curse of having a daughter. So he expanded his marriage business to include mail-order brides, and he offered my smart Aunt Lini a partnership. My job was to put up posters in the laundromats and pass out flyers on the subways.

Aunt Lini was a shrewd businesswoman, a widow who'd built my uncle's small-time investor service for cautious Gujarati gentlemen into a full-scale loan-sharking operation that financed half the Indian-owned taxi medallions in Queens. Her rates were simple: double the prime, no questions asked. Triple the prime if she smelled a risk, which she usually did. She ran it out of her kitchen with a phone next to the stove. She could turn a thousand dollars while frying up a *bhaji*.


Aunt Lini's role was to warehouse the merchandise, as she called the girls, that couldn't be delivered to its American destination (most of those American fiancés had faces a fly wouldn't buzz). Aunt Lini had spare rooms she could turn into an informal S.R.O. hotel. She called the rooms her "pet shop" and she thought of the girls as puppies in the window. In addition to the flat rate that Danny paid her, she billed the women separately for bringing gentlemen guests, or shoppers, into the room. This encouraged a prompt turnover. The girls found it profitable to make an expeditious decision.

The summer I was fifteen, Aunt Lini had a paying guest, a Nepalese, a real looker. Her skin was white as whole milk, not the color of tree bark I was accustomed to. Her lips were a peachy orange and she had high Nepalese cheekbones. She called herself "Rosie" in the mail-order catalogue and listed her age as sixteen. Danny wanted all his girls to be sixteen and most of them had names like Rosie and Dolly. I suppose when things didn't work out between her and her con-

tract "fiancé" she saw no reason to go back to her real name. Or especially, back to some tubercular hut in Kathmandu. Her parents certainly wouldn't take her back. They figured she was married and doing time in Toledo with a dude named Duane.

Rosie liked to have me around. In the middle of a sizzling afternoon she would send me to Mr. Chin's store for a pack of Kents, or to Ranjit's liquor store for gin. She was a good tipper, or maybe she couldn't admit to me that she couldn't add. The money came from Danny, part of her "dowry" that he didn't send back to Nepal. I knew she couldn't read or write, not even in her own language. That didn't bother me — guaranteed illiteracy is a big selling point in the mail-order bride racket — and there was nothing abject about her. I'd have to say she was a proud woman. The other girls Danny brought over were already broken in spirit; they'd marry just about any freak Danny brought around. Not Rosie — she'd throw some of them out, and threaten others with a cobra she said she kept in her suitcase if they even thought of touching her. After most of my errands,





she'd ask me
to sit on the bed and light
me a cigarette and pour me a weak
drink. I'd fan her for a while with the newspaper.

"What are you going to be when you finish school?" she'd ask me and blow rings, like kisses, that wobbled to my face and broke gently across it. I didn't know anyone who blew smoke rings. I thought they had gone out with black-and-white films. I became a staunch admirer of Nepal.

What I wanted to be in those days was someone important, which meant a freedom like Danny's but without the scams. Respectable freedom in the bigger world of America, that's what I wanted. Growing up in Queens gives a boy ambitions. But I didn't disclose them. I said to Rosie what my Ma always said when other Indians dropped by. I said I would be going to Columbia University to the Engineering School. It was a story Ma believed because she'd told it so often, though I knew better. Only the Indian doctors' kids from New Jersey and Long Island went to Columbia. Out in Flushing we got a different message. Indian boys were placed on earth to become accountants and engineers. Even old Idi Amin was placed on earth to force Indians to come to America to become accountants and engineers. I went through high school scared, wondering what there was in my future if I hated numbers. I wondered if Pace and Adelphi had engineering. I didn't want to turn out like my Aunt Lini, a ghetto moneylender, and I didn't want to suffer like my mother, and I hated my father with a passion. No wonder Danny's world seemed so exciting. My mother was knocking

herself out at a kiosk in Port Authority, earning the minimum wage from a guy who convinced her he was doing her a big favor, all for my mythical Columbia tuition. Lini told me that in America grades didn't count; it was all in the test scores. She bought me the SAT workbooks and told me to memorize the answers.

"Smashing," Rosie would say, and other times, "Jolly good," showing that even in the Himalayan foothills, the sun hadn't yet set on the British Empire.

Some afternoons Rosie would be doubled over in bed with leg pains. I know now she'd had rickets as a kid and spent her childhood swaying under hundred pound sacks of rice piled on her head. By thirty she'd be hobbling around like an old football player with blown knees. But at sixteen or whatever, she still had great, hard, though slightly bent legs, and she'd hike her velour dressing gown so I could tightly crisscross her legs and part of her thighs with pink satin hair ribbons. It was a home remedy, she said, it stopped circulation. I couldn't picture her in that home, Nepal. She was like a queen ("The Queen of Queens," I used to joke) to me that year. Even India, where both my parents were born, was a mystery.

Curing Rosie's leg pains led to some strong emotions, and soon I wanted to beat on the gentlemen callers who came, carrying cheap boxes of candy and looking her over like a slave girl on the auction block. She'd tell me about it, nonchalantly, making it funny. She'd catalogue each of their faults, imitate their voices. They'd try to get a peek under the covers or even under the clothing, and Danny would be there to cool things down. I wasn't allowed to help, but by then I would have killed for her.

I was no stranger to the miseries of unrequited love. Rosie was the unavailable love in the room upstairs who talked to me unblushingly of sex and made the whole transaction seem base and grubby and funny. In my Saturday morning Gujarati class, on the other hand, there was a girl from Syosset who called herself "Pammy Patel," a genuine Hindu-American Princess of the sort I had never seen before, whose skin and voice and eyes were as soft as clouds. She wore expensive dresses and you could tell she'd spent hours making herself up just for the Gujarati classes in the Hindu Temple. Her father was a major surgeon, and he and Pammy's brothers would stand outside the class to protect her from any contact with boys like me. They would watch us filing out of the classroom, looking us up and down and

smirking the way Danny's catalogue brides were looked at by their American buyers.

I found the whole situation achingly romantic. In the Hindi films I'd see every Sunday, the hero was always a common man with a noble heart, in love with an unattainable beauty. Then she'd be kidnapped and he'd have to save her. Caste and class would be overcome and marriage would follow. To that background, I added a certain American equality. I grew up hating rich people, especially rich Indian immigrants who didn't have the problems of Uganda and a useless father, but otherwise were no better than I. I never gave them the deference that Aunt Lini and my mother did.

With all that behind me, I had assumed that real love had to be cheerless. I had assumed I wouldn't find a girl worth marrying; not that girls like Pammy could make me happy. Rosie was the kind of girl who could make me happy, but even I knew she was not the kind of girl I could marry. It was confusing. Thoughts of Rosie made me want to slash the throats of rivals. Thoughts of Pammy made me want to wipe out her whole family.

One very hot afternoon Rosie, as usual, leaned her elbows on the windowsill and shouted to me to fetch a six-pack of tonic and lemon. I'd been sitting on the stoop, getting new tips from Danny on scalping for an upcoming dance recital — a big one, Lincoln Center — but I leaped to attention and shook the



change in
my pockets to make
sure I had enough for Mr. Chin.

Rosie kept records of her debts, and she'd pay them off, she said, just as soon as Danny arranged a green card to make her legit. She intended to make it here without getting married. She exaggerated Danny's power. To her, he was some kind of local bigwig who could pull off anything. None of Danny's girls had tried breaking a contract before, and I wondered if she'd actually taken it up with him.

Danny pushed me back so hard I scraped my knee on the stoop. "You put up the posters," he said. After taping them up, I was to circulate on the subway and press the pictures on every lonely guy I saw. "I'll take care of Rosie. You report back tomorrow."

"After I get her tonic and a lemon," I said.

It was the only time I ever saw the grown-up orphan in Danny, the survivor. If he'd had a knife or a gun on him, he might have used it. "I give the orders," he said, "you follow." Until that moment, I'd always had the implicit sense that Danny and I were partners in some exciting enterprise, that together we were putting something over on India, on Flushing, and even on America.

Then he smiled, but it wasn't Danny's radiant, conspiratorial, arm-on-the-shoulder smile that used to warm my day. "You're making her fat," he said. "You're making her drunk. You probably want to diddle her yourself, don't you? Fifteen years old and never been out of your Auntie's house and you want a real woman like Rosie. But she thinks you're her errand boy and you just love being her smiley little *chokra-boy*, don't you?" Then the smile froze on his lips, and if he'd ever looked Mexican, this was the time.

Then he said something in Hindi: that

I barely understood, and he laughed as he watched me repeat it, slowly.

Something about eunuchs not knowing their place. "Don't ever go up there again, *hijra-boy*."

I was starting to take care of Danny's errands



quickly and sloppily as always, and then, at the top of the subway stairs, stopped. I'd never really thought what a strange, pimpish thing I was doing, putting up pictures of Danny's girls, or standing at the top of the subway stairs and passing them out to any lonely-looking American I saw — what kind of joke was this? How dare he do this, I thought, how dare he make me a part of this? I couldn't move. I had two hundred sheets of yellow paper in my hands, descriptions of Rosie and half a dozen others like her, and instead of passing them out, I threw them over my head and let them settle on the street and sidewalk and filter down the paper-strewn, garbage-littered steps of the subway. How dare he call me *hijra*, eunuch?

I got back to Aunt Lini's within the hour. She was in her kitchen charring an eggplant. "I'm making a special *bharta* for you," she said, clapping a hand over the receiver. She was putting the screws on some poor Sikh, judging from the stream of coarse Punjabi I heard as I tore through the kitchen. She shouted after me, "Your Ma'll be working late tonight." More guilt, more Columbia, more engineering.

I didn't thank Aunt Lini for being so thoughtful, and I didn't complain about Ma not being home for me. I was in a towering rage with Rosie and with everyone who ever slobbered over her picture.

"Take your shoes off in the hall," Lini shouted. "You know the rules."

I was in the mood to break rules. For the first time I could remember, I wasn't afraid of Danny Sahib. I wanted to liberate Rosie, and myself. From the hall stand I grabbed the biggest, sturdiest, wood-handled umbrella — gentlemen callers were always leaving behind souvenirs — and in my greasy high-tops I clumped up the stairs two at a time and kicked open the door to Rosie's room.

Rosie lay in bed, smoking. She'd propped a new fan on her pillow near her face. She sipped her gin and lime. So, I thought in my fit of mad jealousy, he's bought her a fan. And now suddenly she likes limes. *Damn* him, *damn* him. She won't want me and my newspapers, she won't want my lemons. I wouldn't have cared if Danny and half the bachelors in Queens were huddled around that

bed. I was so pumped up with the enormity of love that I beat the mattress in the absence of rivals. Whack! Whack! Whack! went the stolen umbrella, and Rosie bent her legs delicately to get them out of the way. The fan teetered off the pillow and lay there beside her on the wilted, flopping bed, blowing hot air at the ceiling. She held her drink up tight against her nose and lips and stared at me around the glass.

"So, you want me, do you?" she said.

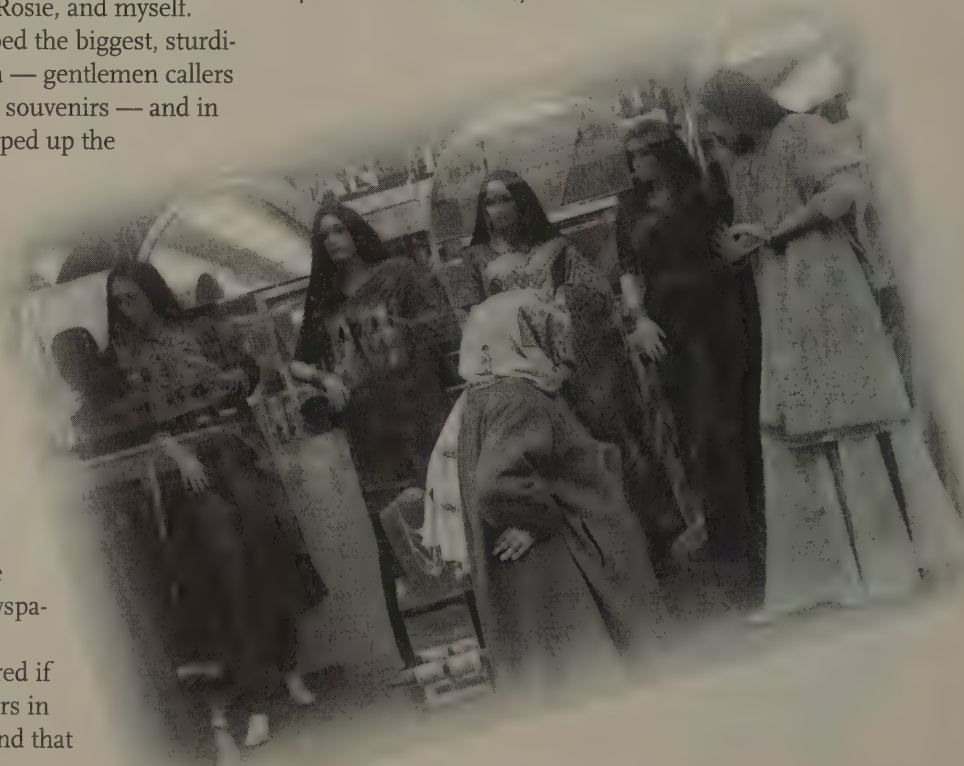
Slowly, she moved the flimsy little fan, then let it drop. I knelt on the floor with my head on the pillow that had pressed into her body, smelling flowers I would never see in Flushing and feeling the tug on my shoulder that meant I should come up to bed and for the first time I felt my life was going to be A-Okay. ☺



Bharati Mukherjee is an exquisite craftswoman of immigrant tensions. We found "Danny's Girls" in *Patchwork of Dreams*, an urban literary ecology anthology about Flushing, Queens (available from The Spirit That Moves Us Press,

718/426-8788). Her urban writing mentor/inspiration is Henry Roth (*Call It Sleep*). Born in India, with time in Canada as well as Iowa and Queens, she now holds a professorship at UC Berkeley. Her works include *Days and Nights in Calcutta*, *The Middleman* and *Other Stories*, *Wife*, and *Darkness*.

The photographs of Queens are by Josh Schwartz, who is based in New York and specializes in the US and Mexico.



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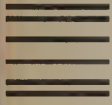
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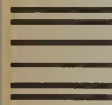
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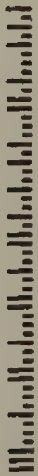
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“I’d Love a Hot Dog from That Central Computer”

Zach Leary’s Bardo Talk

Hello everybody. I’d like to thank all the previous speakers who really rose to the occasion and said some really special words. It hasn’t been long enough yet to have some perspective about what Timmy has taught me as a father. All I can say is that he taught me everything. He taught me how to be brave. How to be courageous. How to be gracious. How to use my mind to its full potential. As a young man getting older, I realize more and more what he was about. You know, these things are kind of hard to figure out when you’re a kid. I’d like to talk about his death and dying. As I did become older, Timmy did get sicker and sicker. If there is such a thing as a beautiful death, he died it.

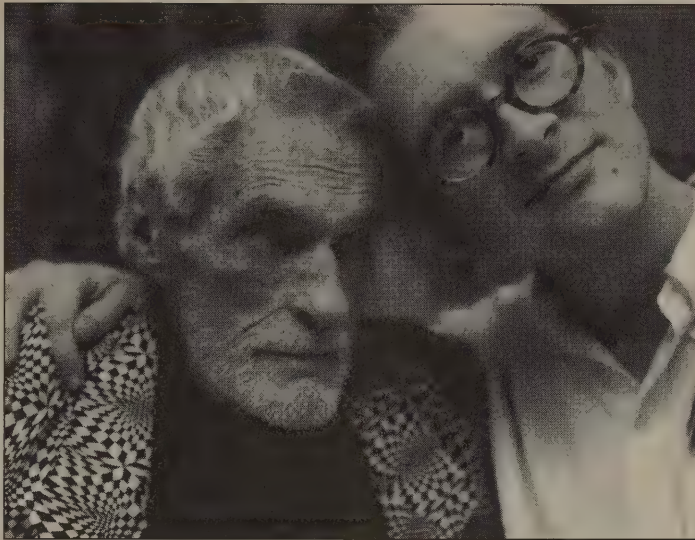
Sri Maharani Maharishi, when he was dying, said to his disciples, who were so devastated by his dying, “I’m not leaving you. Where could I go? I’ll always be there.” Timmy really feels everywhere to me right now. For a man who was so present it’s really hard to imagine him going anywhere. Because of that I feel a tremendous sense of joy in the life that he did lead. This is a celebration of a life not of a death. If we as individuals could leave twenty-five percent of what he did, we’d accomplish a lot.

I’d like to share with everybody the last five weeks of his life. He had gone through his whole withdrawal from the human experience here on Earth and started saying some really special things to all of us who were around him, even some things that are completely left for interpretation. I’d just like to share with you some of those things. He said some of them to me and some of them to all of our friends who were around his last few weeks.

⊕ “The way to communicate with another species is by illumination. Light patterns. It has to do with specific and complex languages of light.”

⊕ To all of us around the table one day just kind of reminiscing, he said, “We’re the best damn people who ever lived — and we’re in touch with the ones who aren’t.”

⊕ On the Monday before he died he asked Camella (a member of our crew) to go paint our patio table white. He explained it by saying, “It’s all white. Look at the white light. If you could see what I see when I close my eyes. Brilliant white light.”



ROBERT GAUTHIER



Above: Tim and Zach. Below: Zach and three of Tim’s grandchildren. Clockwise from top: Sarah Brown, Zach, Ashley Martino, Diedra Martino.

slept in a few days. It really was starting to get to him and he did have a fear of going to sleep towards the end. One night he was standing around the dining room table, standing up and sleeping. Rocking back and forth, sleeping, nodding in and out. I came up to him and tapped him on the shoulder and he woke up and he said, “I did a good job.” Timmy, you did more than a good job. You did the best job. All right, Timmy! Yeah! ⊕

⊕ He also said to Camella just a couple of days before his death, “I’m just barely holding on. It’s so hard to describe. It’s weird.”

⊕ On his deathbed, somewhere in the middle of his last few rants, he screamed out the words, “Publish! Publish! Publish!”

⊕ Tim was asleep. He was having his feet massaged by Dean Chamberlain. Timmy was nodding out. He woke up and said, “Guess! Guess! There’s a stage and the stage is set!” He nodded for a few more minutes, woke up and said, “It’s set for me. White! Black! Squiggles!”

⊕ Another incident with Dean happened just a week or so before. He told Dean he had to go to the bathroom. He said, “Let’s go for an adventure. Just shit. Let’s explore the forces of gravity. Bring one full balloon and two half-full balloons. This shitting. Everyone. Three times a day. Millions of people. Sick! I want nothing to do with it!”

⊕ On the Monday before he passed, he said, “I’d love a hot dog from that central computer.”

⊕ “What you’ll find is many crossroads. There will be many crossroads. In front of you. And you choose one. And there are more and hopefully more, but the old ones don’t work as well.”

Finally, I just want to share perhaps the most moving of the last few days, weeks. Ministry came to town, a rock ‘n’ roll band. Timmy went to both shows back to back. It exhausted him so much. He hadn’t

Timothy Leary — Harvard professor, high priest acid head, cyberpioneer, jailbird, three marriages, one significant other, and a complex of bio- and adopted children — told Zach to keep him alive in cyberspace (www.leary.com). His joyous death (“Mademoiselle Cancer moved in to share my body”) can be read in *Design for Dying* (Harper Edge) — cutting edge (as always) spiritu-tech. We also thank Zach for his generous spirit.

Partial Closure

Dorion Sagan Reflects on Carl

"It is enough that our fathers have believed. They have exhausted the faith-faculty of the species. Their legacy to us is the skepticism of which they were afraid." — OSCAR WILDE

Of the several cartoons in which my father's image appeared, perhaps the most famous, published in the *New Yorker*, depicts two aliens coming to Earth. "No, not Carl Sagan," says one of the saucer-bound spacelings, "too hokey. Let's grab somebody less obvious." He will forever be associated in the popular imagination with the cosmic, the extraterrestrial, the post-religious scientific sublime. 6'2", with bass voice (I heard it in the womb), perfect diction, encyclopedic memory, umless speech, and a preternatural (if to me privately aggravating) way of orating reasoned paragraphs that made other people's speech sound like illogical jabberwocky, he was — and is — larger than life. When I was twelve, listening with great frustration to conservative talk show host Avi Nelson in Boston, I used to daydream that my father would call in and put the smarmy rhetor in his place — blow him away with reason.

My father was the greatest contemporary spokesperson for science. He was a passionate defender of the truth as he saw it, revealed by the scientific method. And he was a good scientist. He postulated that Venus was so hot because the carbon dioxide in its atmosphere had led to a runaway greenhouse effect; this was later confirmed. Although he would have loved finding life on Mars, he theorized that the changing surface of the red planet was due not to

seasonal vegetation but violent dust storms. His theory was not only proved true, but also provided the starting point for the notion that a similar dust-raising, sun-obscuring nuclear winter could threaten Earth's agriculture and life on a global scale. Any historical account of the end of the Cold War must certainly ascribe a role, perhaps the pivotal role, to the dissemination of this theory. And he showed that brownish substances similar to those

found on Jupiter and its moons could be synthesized in the laboratory; unfortunately, these organic compounds, called tholins, may have contributed to his death by leukemia.

Considering that my mom and he split when I was so young, I was secretly gratified when his career later took a turn from the extraterrestrial to the worldly. He and his third wife Ann Druyan were arrested at a Nevada nuclear test site,

protesting nuclear arms policy. He took his message and his indefatigable reason to the floor of the Senate; he successfully debated Secretary of Defense Caspar Weinberger on national TV; he refused three invitations to the Reagan White House; he showed the power of the intellect and moral authority are still forces to be reckoned with in this political age of sound bites and sloganeering. At the Cathedral Church of Saint John the Divine memorial, physicist Roald Sagdeev, a former adviser to Mikhail Gorbachev and director of the Space Research Institute in Moscow, credited my father with ending the Cold War. If, I reasoned at some unconscious level, I was to be passed over for the sake of his career, it was more pleasant to imagine I had been set aside for world peace than exobiology (one of those rare disciplines which, like parapsychology, is a science without a subject).



Dorion Sagan is a science writer and magician. He has collaborated with his mother, Lynn Margulis, on an amazing number of fine books including *Microcosmos* and *What Is Life?* Current projects include *What is Sex?* (Simon and Schuster) and *Into the Cool: The New Thermodynamics of Creative Dynamics* (Henry Holt).

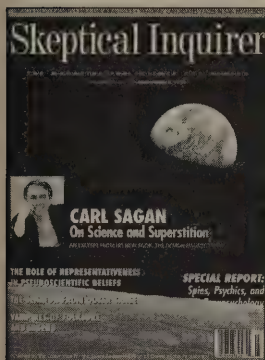
The White Knight of Science

My brother Jeremy, who shared the podium with Vice President Al Gore at the February 27 memorial service, described my dad as a “noble truth teller.” I do believe this is largely true and the source of much of my father’s authority. He had an exquisite integrity and thirst for knowledge;



he was in love with science and the search for truth. Many of our most intense discussions were epistemological. But I find it interesting, at this late date, to see where my father and the truth were at variance — not only because it shows his humanity, but also because it touches upon some of the weaknesses of the positivist tradition, to which he gave such an eloquent, consistent, and ardent voice.

The avidness with which my father attempted to protect the hallowed realm of science from the encroachments of pseudoscience was admirable. America is, after all, an anti-intellectual country. Our greatest contribution to



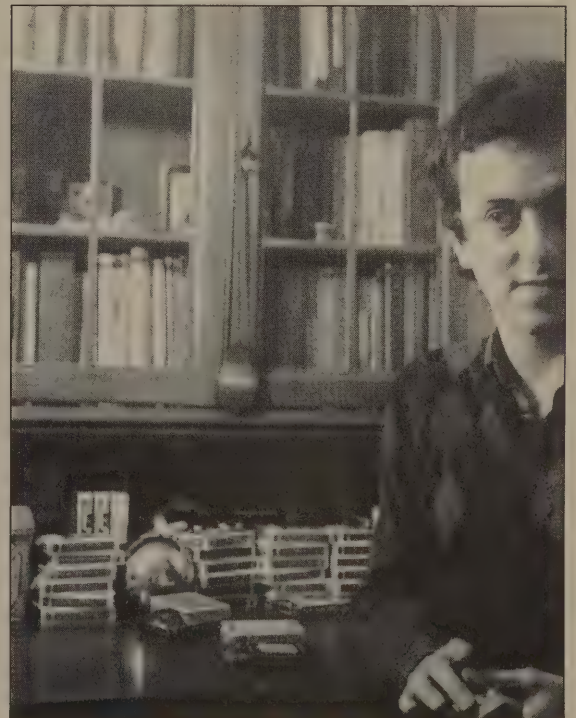
philosophy is pragmatism — or, in the words of the sneaker goddess Nike, “Just do it.” Had my father called into question the attitude of the *Skeptical Enquirer* (on whose board he served), with its we-are-the-knights-of-reason philosophical naiveté, as avidly as he did that of the *National Inquirer*, with its we-don’t-print-lies-we-just-believe-anything-anybody-tells-us stories about aliens and astrology, he would never have attained the position of moral and scientific authority that he did.

He hated it when I claimed with Nietzsche that nature isn’t given but already always an interpretation. Or when I spoke of the metaphorical nature of all language, including scientific discourse. Or when I pointed out the rhetorical way in which he used words like “science” and “evidence.” Don’t get me wrong: I think science packs as powerful a punch as most all philosophy, and I think science’s habitual appeal to nature gives it the upper hand. And yet, as I tried to tell my dad,

science’s brilliant practice of keeping its truths provisional and open to revision in light of new evidence tends to make it cocky, thinking itself not only above superstitious pseudoscience, but also beyond any obligation to examine its all too human philosophical roots.

My father’s last book, *The Demon-Haunted World*, dedicated to my son, his only grandson, was a heartfelt critique of intellectual fraud wishful thinking; a defense of science, reason, and the wondrousness of nature unelaborated by feel-good fantasy. Recognizing my knowledge of sleight-of-hand magic (whose techniques are sometimes used by the unscrupulous to pretend supernatural powers) and our ongoing philosophical tete-à-tete, my father sent me the manuscript for comment. But when he wrote of those “standard postmodern texts, where anything can mean anything,” I was as critical of him as he had so often been of me. To which standard postmodernist texts was he referring? Had he, in fact, read any? There is a huge difference, I emphasized, between a philosophical critique of science — an historical examination of its social context, inevitable assumptions, and limitations — and pseudoscience, the uncritical acceptance of unsubstantiated beliefs. Nor is the second-rate nature of many academics sufficient reason to dismiss philosophical skepticism about science — any more than Christ’s message of love should be trashed because he has not yet saved us from belligerent Christians.

I thought it hypocritical of my dad to preserve science from the critical skepticism that it aimed so effectively at the rest of the world. The situation is similar to that of post-enlightenment philosophers who used reason to deconstruct reason. Needless to say, one cannot be critical of everything. Some things must be taken for granted. But that is part of the point. Behind the shiny chrome façade of twentieth century science is not the Wizard of Reason but good old fallible



Dorion performing sleight-of-hand

human nature.

Not long ago I heard myself speaking in an un-lessly low and authoritative voice. It was my father. I was channeling him:

"Annie, this is Carl. I am making this communication to you through my son, Dorion. The search for extraterrestrial intelligence is not what we imagined. Aliens already exist, in what the Christians call Heaven. Everything is already here, what were known as 'ghosts' in the hydrogen-wavelength spectrum. The aliens are not dwelling on other planets, as the Drake equation suggests. The 'aliens' are us, projected orthogonally against the gradient of linear time. Ironically, Dorion was right. I am going to continue to use his body to project this crucial new evidence to the widest possible scientific and lay audience. Annie, I'd like you to call a press conference."

My father, would he stir in the grave at such irreverence? I would hope not. Laughter is truth. I would like to laugh with my father. I was never so proud as when he laughed with childish delight at the sleight-of-hand magic I performed as a teenager.

Partial Closure

My mother tells me that Carl was jealous of her attentions to me when I was a baby — a potential Oedipal drama hardly unique in the 1950s. "I trust that name has served you well," my dad once said. "Well, yeah, Dad, but . . ." At the height of the popularity of "Cosmos," seen by half a billion people and at one time the most popular program in history of public television, my evolutionary biologist mother (Lynn Margulis) and I received a contract from Simon and Schuster to write *Microcosmos*, a book about bacteria. My father called it a rip-off title and warned that people might see my name and, confusing my book for his, purchase it mistakenly.

The only reason that I would dare to think that I might temporarily fill his shoes long enough to finish this essay is because I am wearing them! Well, how, you may well ask, could little Dorion, only 5'10 3/4", and some 150-odd pounds, fill the great Carl Sagan's shoes? The answer is simple. Carl bought these shoes (black zipper-lined Beatle boots, similar to the ones that British eccentric Nicholas Guppy informs me caused quite a stir when Carl wore them to a lecture in the 1960s at the staid British Astronomical Society) in Italy, in the morning. As any proper member of the landed aristocracy knows, you don't purchase shoes in the morning; feet swell during the day, so the shoes may be too tight. Fortunately for me, my dad didn't know this, and bought three pairs that happy a.m.

In 1985, my father arrived in the ICU at my bedside after I was the victim of a violent crime in Florida. He was there for me and it improved our relationship. Weak and paranoiac before prophylactic brain surgery to forestall the possibility of meningitis, I was assured by him that my Hindu-like fears about the Godhead splintering itself into separate selves, each no longer bored because of the spellbinding illusion of death, were not that creepy or unusual. On the contrary, he assured me, whether God could kill Himself was an ancient question of western theology. My father believed in the God of Spinoza and Einstein, God not behind nature but as nature, equivalent to it. So can God commit suicide? I'm studying thermodynamics now, and its first law, that of the conservation of energy, suggests that God cannot. Every boy needs his father.

As time went by, my relationship with my dad improved to the point where I felt I could express my disappointment and anger, after which our relationship began to deteriorate again. I found myself in heated arguments with him on scientism and capitalism. But firing our intellectual arguments were unresolved emotional problems.

As other children before me have discovered, giving up on your demands, just letting your parent be another person, an adult, is freeing. Most of us think our parents are superhuman when we're young, and with my dad the illusion was a realistic one. After "giving up" on him, though, we both felt relief. He even mentioned that our relationship had improved and asked if I knew why that was. Basically, I gave up on you, I admitted. Is there anything he could do to improve our relationship, he asked me. I said no, not really, it's a Zen thing. Nothing that can be done. Accept it.

But the reconciliation, the closure I thought I had achieved by abandoning my demands, by no longer expecting him to do something which he really couldn't do anyway — make up for the long-gone past — was questionable. At the funeral I had prepared something about his life and science, but after reading it to Jeremy, who told me it could have been written by a colleague, I scrapped it. Instead I gave, at graveside, a veritable public-service announcement on the benefits of reconciling with your parents before they die, which implicitly I had assumed I had done. I had not.

A few days later I found myself regretting that I had let him off the hook so easily. However Zen, telling him there was nothing he could do meant he did not have to try. In retrospect, a week after his death, I doubted the wisdom of such non-attachment. I loved him. I wanted to love him. I wanted him to love me. I cried — for him and all that he was, and was not, to me. It was clear

We make our world significant by the courage of our questions and the depth of our answers. —CARL SAGAN

The million galaxies in our local billion-light-year neighborhood.
—*CoEvolution Quarterly*, 1978.

then that my “sage” speech on the importance of pre-mortem reconciliation with parents may have been premature. Practice what you preach. I wasn’t reconciled myself. Yet. But then I had this cool dream:

I am sitting outside, a person or two on the balcony across the street. It slowly grows into a party with people sitting on the wall of the balcony over a convenience store and whooping it up each time a car passes by. My father is on a bench on my side of the street but I don’t recognize him until I hear his voice. We have somehow reconciled, I somehow know he is going to die, but there is something strangely weak and soft about him. Later, I go to the convenience store across the street. Somebody buys a confection, gives it to me because his “tongue couldn’t fit all the twists.” I taste it, it is dry — I discard it. We make an exodus past the store to a field where some of us gather. I wonder where we are going. Someone tells me that “entrepreneurs” are selling stuff that the family has eaten — relic-like, because of my father’s fame. Then, beyond a couple of painted clowns scooting by, I see my father leaving. He is going, he is going to die. Now he is almost gone. I hug him and he returns my affection with a truly great loving hug. I find myself on my knees like a toddler, crying and trying to hold on to my dear, departing father. Except he isn’t there. I look up

and see two great leg-like trees, topped by the canopy and the sky. He is gone.

When I wake up, I feel reconciled. My regression into a bawling toddler, and his disappearance back into nature, has somehow done the trick. The trees, I recall, are especially interesting. When I was eight or so he told us a story that continued over the course of several weekends. Apparently he made the serial up as he went along. It was a change from his usual stories of time travel and black holes, neutron stars and other dimensions. But even in this story there was an astronomical connection: the characters had names like Callisto, Ganymede, Europa, Io, and so on — they were named after the moons of Jupiter. And curiously, in one of the first installments, he said something which I will never forget. He mentioned four trees, oak or pine I can’t remember, in a line. Their significance, he said, was to become clear later in the story. He went on to regale us with the twists and turns of this spoken fiction. He never returned to the significance of the trees. I now realize that the trees’ mention was a plot device, a suspense-builder that made you want him to keep telling the story, if for no other reason than to find out what they meant. And two of those trees, at least, have shown up, their significance rich — they are nature beginning to replace my dad’s body — in my reconciliation dream. ⊕

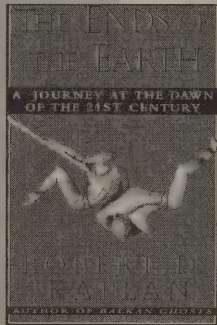
“And other spirits . . . are standing apart
Upon the forehead of the age to come;
These, these will give the world another heart,
And other pulses. **Hear ye not the hum
Of mighty workings?—**
Listen awhile ye nations, and be dumb.” —JOHN KEATS

What is shredding the *Social Fabric*? Here's a slew of writers trying to get a grip on the global shredder(s) of local social fabrics. To do so, they re-vision history. As the plot unfolds, their *Demon* takes front stage, whirling to edge-of-chaos music. These thinkers sport the most mischievous, adventurous, and thoughtful recent mental models of current history. —PETER WARSHALL

The Ends of the Earth
(A Journey at the Dawn of the 21st Century)

Robert D. Kaplan. Random House, 1996;
476 pp. \$27.95.

First appeared in the *Atlantic Monthly* (1994). The beefed-up book version remains a heart-convulsing, mind-wrenching, relentless, and accurate kaleidoscope of the global Golems slicing at life with wrathful shivs. Ecological Exhaustion. Shot-the-Limit Populations. Collapsed Government/Legitimacy. Ethnic Jealousies. Epidemic Disease. Socially-Induced Famines. A stampede of horse-men in hotspot terrains (West Africa, Egypt, India, Pakistan . . .). Kaplan has no scenarios for salvation nor portraits of the heroic resilience of the two-thirds of humanity who cope every day with an inordinate amount of horrible luck. —PW (Suggested by Stewart Brand)



“The more I saw of the world, the less I felt I could fit it into a pattern. No one can foresee the precise direction of history, and no nation or people is safe from its wrath. Earlier in my journey, upon descending the Karakoram Highway, Keats had urged me to be “content with half-knowledge.” Now, at the end of my journey, drifting asleep in the plane, I heard the poet again: [see title].

“A small, half-naked boy led my translator and me through another network of alleyways filled with garbage,

creaking wooden planks, scampering rats, stray dogs, and hammered-metal Buddhas in makeshift plywood temples. We emerged beneath one of Bangkok's major freeways. . . . Nearby was a vast burnt-out ruin: pieces of black and charred wood stuck out of this sea of sludge and wreckage like grave markers in a cemetery. A few weeks earlier, a fire had destroyed over three hundred shantytowns here. Now there was activity all around: The “Lion's Club of Bangkok” was erecting temporary shelters. Inside a parked trailer van, a man with a loudspeaker read the names of those who had received mail that day, while a line of squatters stood waiting. . . . Thai nurses in white uniforms were at make-shift counters, giving cursory medical examinations to local residents. There was not one Western aid worker in the crowd. The faces I saw were all smiling and purposeful, without a trace of languor or self-pity.

The Case Against the Global Economy
(And for a Turn Toward the Local)

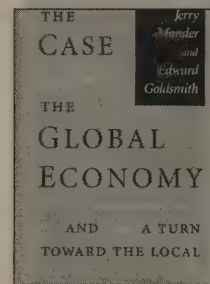
Jerry Mander & Edward Goldsmith, Editors.
Sierra Club Books,
1996; 550 pp. \$28.

When Corporations Rule the World

David C. Korten. Kumarian Press/Berrett-Koehler Publishers, 1995; 384 pp. \$19.95.

The Significant Shredder in *The Case Against the Global Economy* and *When Corporations Rule the World* is the Transnational. *The Case* contains thirty-two essays defining and describing globalization and its hurtfulness, and eleven more postulating a less harmful or more compassionate alternative. *When Corps*

Rule is David Korten's more personal narrative evolved from three years in Ethiopia, Air Force in 'Nam, Harvard Business School, advising the Central American Management Institute (Nicaragua-based), and fourteen years in Southeast

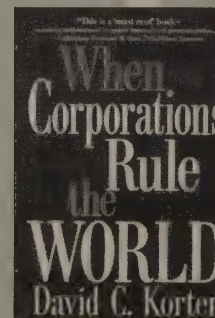


Asia (with the Ford Foundation and US AID). A rarity: intelligent analysis married to frontline experience.

Both books are less conspiratorial than their titles suggest. “Transnational” is their lump 'em term for

the wired networking of international capital, failed structural adjustment programs, holding companies with long-term commitments in many countries (now the quaint “multinational”), amoral, fast-moving transnationals with no commitment to nations or regions, the financiers that leverage buyouts, the World Bank, International Monetary Fund, and World Trade Organization. David Korten, for example, maps out the struggles between global financiers and transnationals (see, especially, his chapter “Delinking Money from Value”).

Both books end with policy — what should happen to turn the tide. For instance, Mark Ritchie's essay “Cross-Border Organizing” in *The Case* provides fine advice to global-oriented civilian groups. To those tired of arias to World Salvation by prima donna economists, free-traders, and global businessmen and financiers, these books are the fire exit. —PW



“Globalization has rendered many of the political roles of government obsolete as well. Companies with globalized operations routinely and effortlessly sidestep governmental restrictions based on old assumptions about national economies and foreign policy. . . . When U.S. President Ronald Reagan ordered economic sanctions against Libya in January 1986,

Brown & Root, Inc., a Houston engineering concern, simply shifted a \$100 million contract for work on Libya's Great Man-Made River Project to its British subsidiary. —WHEN CORPORATIONS RULE THE WORLD

“ Moore County, South Carolina, won a competition in the 1960s and 1970s when it lured a number of large manufacturers from the unionized industrial regions with promises of tax breaks, lax environmental regulations, and compliant labor. Proctor Silex was one of the companies attracted. Later, when Proctor Silex expanded its local plant, Moore County floated a \$5.5 million municipal bond to finance neces-

sary sewer and water hookups — even though nearby residents were living without running water and other basic public services. Then in 1990, the company decided that Mexico offered more competitive terms and moved again. It left behind 800 unemployed Moore County workers, drums of buried toxic waste, and the public's debts the county had incurred to finance public facilities on the company's behalf. —WHEN CORPORATIONS RULE THE WORLD

“ The course we are on is not something that “we” citizens have actually chosen. . . . The democratic process was openly circumvented to create the instruments of globalization. In this anti-

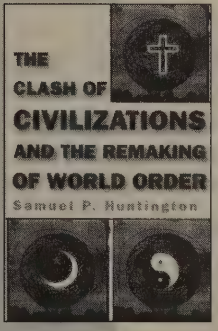
The Clash of Civilizations and the Remaking of World Order
Samuel P. Huntington. Simon & Schuster, 1996; 367 pp. \$26.

In *The Clash of Civilizations*, “Cultural Identity” weighs in heavily as the major driving force shaping future global politics, the avoidance of wars, and civil conflicts.

First things first: without some kind of order, no farmer can farm, no textile plant can turn fiber to shirts, no water can be delivered. Cultures and power provide the order. Culture is a root cause of historical change: naive and arrogant Western universalism; Muslim militancy; Chinese assertiveness; former Captive (Indigenous) Nation revivals.

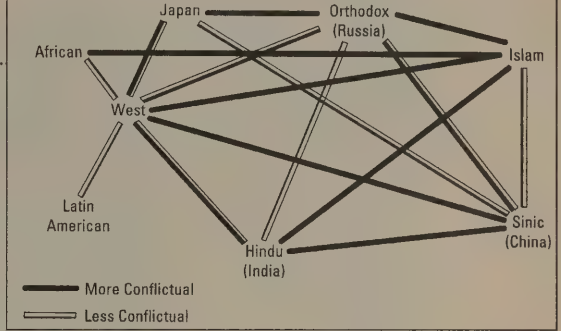
Does the global economy (any more than Balkanization) promote democracy and Western ideals? Should it? Is Puritan, autocratic, and control-freak Singapore any less civilized than California? What kind of friendship (alliances, tolerances) can we have with these modernized, but differently organized, “civilizations?” Do we accept that Anglo-Europeans are a minority in the future US; when that happens, do the ideals of the Enlightenment and French Revolution wither? Will the US become a postmodern Yugoslavia in fifty years?

Huntington is both brilliant and nostalgic. He pumps up Western ideals, clarifies how power feeds cultural identities (where would Muslim militancy be without oil?), promotes an unnerving paradigm (do we want Western or modern or none of it?), and pushes broadly for a multi-civilization tolerance. —PW (Suggested by Stewart Brand).



“ For the first time in history global politics is both multipolar and multicivilizational; modernization is distinct from Westernization and is producing neither a uniform civilization in any meaningful sense nor the Westernization of non-Western societies. . . . The balance of power among civilizations is shifting: the West is declining in relative influence; Asian civilizations are expanding their economic, military, and political strength; Islam is exploding demographically with destabilizing consequences for Muslim countries and their neighbors; and non-Western civilizations are generally reaffirming the value of their own cultures. . . . A civilization-based world order is emerging; societies sharing cultural affinities cooperate with each other; efforts to shift societies from one civilization to another are unsuccessful; and countries group themselves

democratic rush, the Western “democracies” behaved no better than anyone else; in fact, we were far worse. Since it was our scheme to begin with, we used our economic and military stature to intimidate smaller, more resistant countries into acceptance. The movement toward economic globalization is no expression of democracy, nor is it the kind of “evolutionary” process that its advocates claim it is, like a force of nature. It is simply a scheme people thought up, an economic experiment designed to favor the institutions that promote it. —THE CASE AGAINST THE GLOBAL ECONOMY



around the lead or core states of their civilization. . . . The West's universalist pretensions increasingly bring it into conflict with other civilizations, most seriously with Islam and China; at the local level fault line wars, largely between Muslims and non-Muslims, generate “kin-country rallying,” the threat of border escalation, and hence efforts by core states to halt these wars. . . . The survival of the West depends on Americans reaffirming their Western identity and Westerners accepting their civilization as unique [but] not universal and uniting to renew and preserve it against challenges from non-Western societies.

Emerging Alignments.

The West and the Rest: 1920



World Future Survey

Future Survey Annual, Vol. 16.
1996; 192pp. \$35.

World Futures and the United Nations

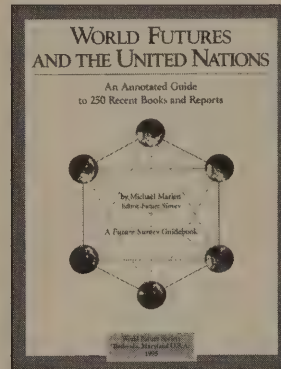
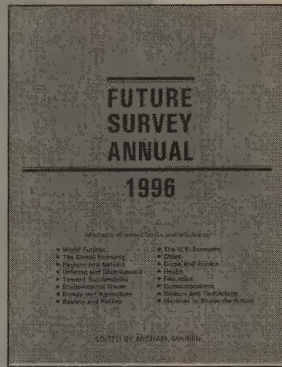
1995; 116 pp. \$25.

Environmental Issues and Sustainable Futures

1996; 170 pp. \$35.
Add \$4.50 per order for shipping.

World Future Society, 7910 Woodmont Avenue, Suite 450, Bethesda, MD 20814; 301/656-8274, fax 301/951-0394.

The World Future Society trio has no preferred shredders. Simply the most complete access to books and articles on anything and everything that might influence the future. Each article/book has a short neutral description of what the author believes he/she is writing about, with, at times incisive end notes by the editor. —PW



“ GLOBAL ORGANIZED CRIME: THE NEW EMPIRE OF EVIL. Edited by Linnea P. Raine and Frank J. Cillufo. Proceedings of a September 1994 conference sponsored by the CSIS Global Organized Crime Project.

Sessions consider global financial systems under assault, hacking in the cyberspace jungle, maintaining security and efficiency in the financial system, the international black market in drugs and fissile materials, risks and trends in global organized crime, and containing the new criminal nomenclatura . . . Some key points: 1) money laundering is now estimated at \$500 billion a year; 2) counterfeiting of

US tender increased 300% between 1992 and 1993 (counterfeit currency funds terrorist activity worldwide); 3) operational and intelligence-gathering techniques employed by transitional criminals are more sophisticated than those of law enforcement agencies (criminals buy state-of-the-art hardware and software; law enforcement lags five years behind); 4) financial crimes are now threatening the world's financial infrastructure; 5) some 5,700 Russian criminal gangs dominate every aspect of political, economic, and social life in the former Soviet republics; more than 200 of them have relations with counterparts in 29 other countries; 6) information anarchy on the superhighway is enabling criminal employees to take control of a corporation's assets; 7) there have been 400 attempts to sell nuclear materials in Germany in the past two years (many nations and criminal groups are in this market). —FUTURE SURVEY ANNUAL

“ INTERNATIONAL BUSINESS AND GOVERNMENTS: ISSUES AND INSTITUTIONS. Jack N. Behrman and Robert E. Grosse.

Governments relate to transnational corporations (TNCs) at three levels: 1) Local: cities and states/provinces seek

The Resurgence of the Real (Body, Nature, and Place in a Hypermodern World)

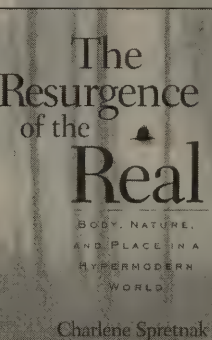
Charlene Spretnak. Addison-Wesley Publishing Co., 1997; 256 pp. \$22.

The Resurgence of the Real is a manifesto of political philosophy. Charlene Spretnak calls the ominous driving force “Prometheus, the Hypermodern.” The future is a Zoroastrian-style battle. In one corner is “Prometheus, the Hypermodern” — a victorious, reductionist technowarrior that has denigrated the knowing body, desacralized nature, and irrealized the locus called “place,” a free-wheeler whose bravado advertises the grand elimination of the divine in everyday life. In the other corner is “Ecological Postmodernism.” Spretnak clearly portrays the rounds lost to Prometheus, but argues that the Hypermodern is so alienating and, ultimately, self-destructive, that the

final battle has yet to be staged. The forces of light include: the knowing body =

health tied to the planet; the creative cosmos = freedom judged within the web of life; a complex sense of place = countervailing focus to homogenization and globalization. A book to infuriate those who claim that the truth is not

sensuous; that intimacy with nature must be coldly objective; and that spirituality is a frivolous bad habit of the human species. If a religious revival is soon to sweep the planet, then this is its embryological testament. (A secular/sober view of the rise of non-state, global civil society is “Power Shift,” by Jessica Matthews, in *Foreign Affairs* (Jan./Feb. 1997)). —PW



“ The growth of grassroots movements around the world for environmental protection, democratic reform, community-based economics, human rights, spiritual renewal, nonviolent conflict resolution, and an end to militarism constitutes a substantive challenge to the modern ideologies of denial.

Modern	Deconstructionist Postmodern	Ecological Postmodern
Metanarrative: salvation, progress	None (They're all power plays.)	The cosmological unfolding
Truth mode: objectivism	Extreme relativism	Experientialism
World = a collection of objects	An aggregate of fragments	A community of subjects
Reality = fixed order Sense of self: socially engineered	Social construction Fragmented	Dynamic relationship Processual
Primary truth: the universal	The particular	The particular-in-context
Grounding: mechanistic universe	None	Cosmological processes
Nature as opponent	Nature as wronged object	Nature as a subject
Control over the body	“Erasure of the body”	Trust in the body (It's all social construction.)
Science: reductionist	It's only a narrative!	Complexity
Economics: corporate	Postcapitalist	Community-based
Political focus: nation-state	The local	A community of communities of communities
Sense of the Divine: God the Father	“Gesturing toward the sublime”	Creativity in the cosmos, ultimate mystery
Key metaphors: mechanics, law	Economics (“libidinal economy”), signs/coding	Ecology

to attract foreign investors and offer incentives (often more than necessary); 2) National: governments set rules for the conduct of foreigners, and sometimes for the conduct of nationally-based companies operating abroad; 3) International: rules among members of regional associations and efforts to create common rules for the world economy. Chapters discuss concerns of national governments, characteristics of TNCs, policies of home governments and host governments, legal issues and international law, and TNC relations with seven regional associations and with UN organizations. —WORLD FUTURES & THE UNITED NATIONS

George Mokray's "A List . . ."

To subscribe, email a-list-request@world.std.com, leave the subject line blank and type "subscribe" as the message.

George Mokray began this listserv/ Webpage as a bulletin board for enviro lectures in the Boston area. It's still a comprehensive list of lectures, meetings, and conferences in Boston/Cambridge and environs. But it's

become invaluable to those of us elsewhere, with book reviews, conference reports (I don't know how one person gets to as many meetings as George) and pointers on and off the Internet to resources in sustainable architecture and economics, solar strategy, mirror worlds and George's other passions. We read it weekly; "A List . . ." has scooped us more than once.

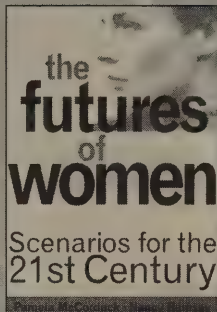
You can subscribe to "A List . . ." for free, but if you find it helpful, send the man some tangible gratitude. According to George, "I ask for contributions in the form of money, articles, information, wishes, prayers or attention. The first year I collected about \$250 and the second year the total ran to \$625. If I keep going at that rate, in five years or so I should have the kind of income that would more than support my meager needs and extravagances." —MKS

"This summer I got interested in trying to locate all the eco-industrial parks (EIPs) planned for the United States. In my research, I discovered that Michelle L. Bell of Oak Ridge National Laboratory was working on a report that would do something like that so I put that project aside. A few months ago, I contacted Michelle again and found that Oak Ridge had published her and Michael Farrell's report and she told me how to get a copy of "Eco-Industrial Parks, the Industrial Model of the

The Futures of Women (Scenarios for the 21st Century)

Pamela McCorduck & Nancy Ramsey, Addison-Wesley Publishing Co., 1996; 288 pp. \$24.

Voices speak from scenes set in 2015, in the past tense. Characters from around the planet report on the state of their experience, depending on what events and technologies have come to pass. A science fiction novel? Not exactly. These are "scenarios," developed by shuffling present trends and hard numbers with potential changes in worldwide social, environmental, and economic policies. The authors assert that what most people think will happen won't. They must have had a hell of a time arranging the



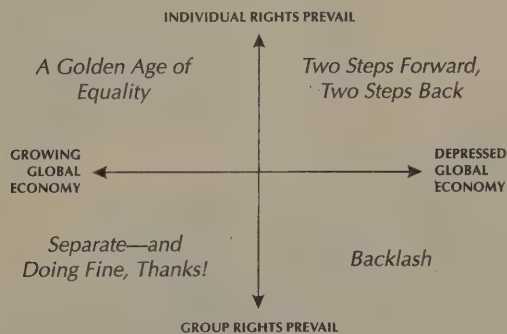
order of their possibilities: Do we entice the reader with the resurgence of the hidden Goddess or stun her (him) with misogynistic Purgatory?

Pamela McCorduck and Nancy Ramsey don't claim to be oracles — the accuracy of their scenarios will be determined by how much independence women claim or are denied. We're reminded that some women don't want change, others don't think there's imbalance, or feel helpless with regard to evolving the status quo. This book is Hello! for those who only look at the obvious (those damn men!) to answer Why is it like this? Certainly, elements of Futures are upsetting, but it all needs to be here, to sober, illuminate, and provoke. The book is great at teaching that comprehension, inclusiveness, and imagination will benefit women and men. —Elizabeth Thompson

"Secular femmunes were one answer to a transformation that Arab women felt compelled to make, but which their cultures weren't ready for. Ironically, the femmunes claimed their heritage from one of the most misogynistic of institutions, the traditional harem, where women had been isolated for centuries. They acknowledged this heritage proudly: women had been emotionally self-sufficient in the harems, and now they would be economically self-sufficient in femmunes. —From "SCENARIO 4: SEPARATE — AND DOING FINE, THANKS!"

"When Western images began to flood into India from satellite TV in the mid-1990s, many Indian young people underwent a crisis of identity. Into this

confusion moved two fundamentalist Hindu political parties, the Bharatiya Janata party and the Shiv Sena party, offering novel interpretations of the hugely popular Hindu myths, interpretations that were medieval in their stereotyping of women. Mythical Hindu heroines were portrayed as having a nearly infinite capacity for self-sacrifice; they acknowledged that their only proper role was service to the family, and cautionary tales showed how women who worked outside could never rear their children properly. These myths captured the imagination of millions of Indian young people; their simplicity and obviousness seemed deeply "Indian," different from and purer than corrupt Western ideas. —From "SCENARIO 1: BACKLASH"



The four scenarios are a textual version of virtual reality: In each the same predetermined elements play a role, though they play out differently. Electronic money may encourage easy buying and economic development in one scenario, but it could camouflage fraud and crime in another. Money itself might disappear in some places, to be replaced by barter.

Future, and ORNL Opportunities" by contacting Anita Sims (asi@ornl.gov) at Oak Ridge.

"Best environmental directories, an index of 250 www indexes of environmental sources on the Internet, classified by 250 subjects and types (from air to water, from selected lists to metadata-bases) is available in the following languages: English, French, Dutch, Italian,

German. The English, French and Dutch indexes are UPDATED EVERY WEEK . . . The German and Italian indexes are several months old (only the links are verified, but new directories are not added). In addition, the English and French versions are optionally accompanied with comments, also updated every week. General site starting point (English version): www.ulb.ac.be/ceese/cds.html.

Factor Four (Doubling Wealth, Halving Resource Use)

Ernst von Weizsacher, Amory B. Lovins, and L. Hunter Lovins. Earthscan Publications, 1997.

Double the global standard of living while halving resource use. More for less as well as more with less. That's the bright promise of this new report to the Club of Rome. It is a positive answer to the grim futures forecast by the famous 1972 report to the Club, *Limits to Growth*.

To head off credibility questions, the book commences with several dozen credible examples of **Factor Four** philosophy in action. The main course is a detailed outline of how to make it happen — soon — on a worldwide scale. It is an enthusiastic, well-formed argument, based mostly on the hard numbers and facts so necessary to convince many minds that **Factor Four** thinking will pay. A rousing section titled, "Markets Are Not a Substitute for Ethics, Religion and Civilization" winds up a fascinating read.

But will it inspire the needed action? I think it just might; it's so logical and well put. I'll bet we haven't heard the last of **Factor Four**. In fact, a Factor Ten society is already well under way. —J. Baldwin, preparing a college course using **Factor Four** as the textbook.

“ A kilogram of metal obtained from mines often requires tonnes of ores to be processed. Schmidt-Bleek (1994) speaks of the 'ecological rucksack' carried by the metal. In the case of gold and platinum, the relation is 1:350,000. Imagine the weight of the ecological rucksack of the gold ring on your finger. It would be 3 tonnes for a ring weighing a mere 10 g.

“ The architect of the Novi Hilton hotel in Novi, Michigan, requested and got a credit of \$70,000 against the new 300 unit hotel's 'tap fee' to connect to the local water system because he'd specified water-efficient fixtures that he could prove would save 70 per cent of the water. He therefore didn't 'lock up' as much of the city's water and waste water as usual, leaving it available for other users, and deferring the need for costly expansions. In addition, after five years' operation the hotel reported metered savings of \$35,000-45,000 a year on water and sewerage bills, together with high satisfaction among its guests.

“ If better engineering education improved the efficiency of building

services by only 20-50 percent (as compared with the 70-90+ percent illustrated in Chapter 1), just the avoided utility investment, present-valued over the career of a single mechanical engineer, would amount to some \$6-15 million per brain — surely a hundred or a thousand times more than the better engineering education would cost.

“ The rest of the 1990s will offer a fascinating test of political glasnost in societies that consider themselves market-oriented. Will they really wean themselves off corporate socialism and adhere instead to the market principles they teach? Will the US, for example, eliminate its more than \$30 thousand million a year in federal subsidies for energy supply — nearly all going to the least economical options that remain least successful in the marketplace?

Stuff (The Secret Lives of Everyday Things)

John C. Ryan and Alan Thein Durning. \$9.95 by Northwest Environment Watch, 1402 Third Avenue, Suite 1127, Seattle WA 98101-2118; 888/643-9820. wwatch@igc.apc.org.

Stuff tells how the things that fill our lives — coffee and newspapers, T-shirts and hamburgers — are made. It traces athletic shoes, cars, French fries, colas back to their origins. And computers. The stuff-trails are fascinating, but not pretty.

The authors do not intend to send us on guilt trips instead of shopping trips. They

don't expect us to unplug our computers or bury our cars or "bite into some hot, salty fries and think about farmworkers' children with blue baby syndrome." They just want us to understand our world, and to use its products thoughtfully.

They talk about a sign in the Seattle Ship Canal that warns boaters, "No Wake." That's impossible, Ryan and Durning point out — you can't move a boat without creating waves that rock other boats. They prefer another sign that says, "Watch Your Wake. Wish Everyone Did!" —Donella Meadows

“ I drink two cups [of coffee] a day. At that rate, I'll down 34 gallons of java this year, made from 18 pounds of beans. Colombian farms have 12 coffee trees growing to support my personal addiction. Farmers will apply 11 pounds of pesticides to the trees this year. And Colombia's rivers will swell with 43 pounds of coffee pulp stripped from my beans.

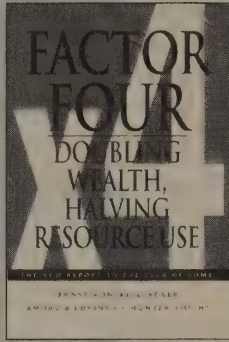
Coffee is the world's second largest legal export commodity (after oil) and the second largest source of foreign exchange for developing nations. The United States drinks about one-fifth of the world's coffee.

“ My computer's 2.5 pounds of copper began as copper sulfide ore, much of it mined from the Chilean Andes for export to Asia. By law, 10 percent of Chile's copper revenues go to the Chilean military.

If the ore contained 0.9 percent copper (the global industry average), making my computer required excavating 280 pounds of ore and at least 300 pounds of other rock lying on top of the ore. The ore was pulverized, mixed with water and chemicals, and boiled to obtain pure copper. Boiling also produced sulfur dioxide (SO₂), which

causes acid rain. Worldwide, the SO₂ emitted in copper production is equivalent to one-fourth the SO₂ emissions of all industrial nations.

Though my computer contains less copper than my car (40 pounds) or the pipes and wires in my house (even more), it was enough to have a big impact. Mining, crushing, grinding, and smelting the 2.5 pounds of copper required the energy equivalent of 73 gallons of gasoline. Mining and producing metals accounts for about seven percent of global energy production.



ADBUSTERS (MWEIC p. 253).

THE MIND OF THE ACCUSED

Books and Videos

by Jay Kinney

AS I WRITE THIS, TIMOTHY McVeigh has started trial for the bombing of the Federal Building in Oklahoma City. Whether he is ultimately found guilty or innocent, his arrest and the attendant publicity have served as an indictment of the milieu from which he sprang — the Militia Movement and the surrounding survivalist subculture.

Upon McVeigh's arrest, the FBI searched his living quarters and came up with the following list of books and videos found there. Not surprisingly, the items listed combine to paint a portrait of someone who might well have cheered the Oklahoma City explosion, whether or not the jury ends up finding him guilty. Of course, as with all such inventories, one is left wondering what didn't make the final cut. Were items that didn't support the prosecutor's case left out? Did unlisted books include the Bible or *Ms. Manners*? Did McVeigh also own a *Dumb and Dumber* video? Perhaps we'll never know. But possible omissions aside, the items that follow do offer an unsettling glimpse into the psyche of the accused.

I've always been opposed to the notion that reading matter serves as a direct catalyst to action. It was proponents of this notion who helped shut down some of the best comic books in the mid-1950s based on the conclusion that juvenile delinquents read comics — ergo comics cause juvenile delinquency.

Opponents of pornography have utilized much the same logic: many sex offenders have read pornography, thus pornography fosters rape and so on. I consider the connection between rabblerous literature and actual incidents like the OKC bombing to be just as dubious.

That said, it is not hard to see that the items below, when viewed together, could have a synergistic effect on someone with a chip on their shoulder.

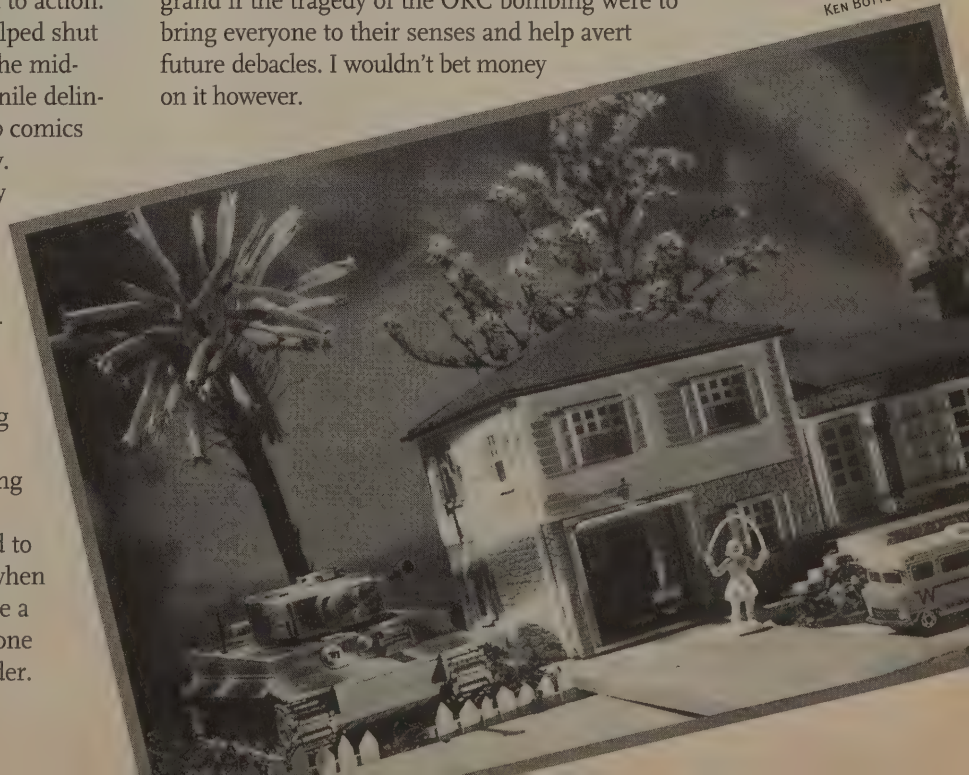


of Timothy McVeigh

If something is wrong with our lives, then someone must be to blame — or so goes such logic. The implosion of the Soviet Union and Eastern Europe eliminated the Bad Guys overseas as the source of American woes. Subsequently both homegrown patriots as well as governmental

agencies turned their gaze to domestic threats and culprits. Ironically, these two camps seem to have found a new enemy in each other. This has led to a vicious feedback loop where the actions of each provoke further paranoia and projection.

The people who make up the Militia Movement see themselves as patriots defending their constitutional rights against a heavy-handed Federal leviathan. That in itself is not necessarily deplorable. Unfortunately, the Militia milieu, in its fear of an imminent political apocalypse, seems predisposed to swallow every conspiracy theory under the sun. Indiscriminate paranoia combined with hidden ammo dumps itching to be used is a recipe for disaster. Throw in a toxic dash of racism, as found in the *Turner Diaries*, and any good intentions on the part of some militia members become submerged in a noxious brew of fear and hatred. It would be grand if the tragedy of the OKC bombing were to bring everyone to their senses and help avert future debacles. I wouldn't bet money on it however.



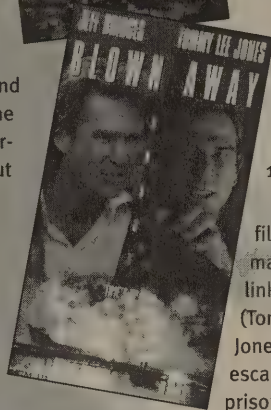
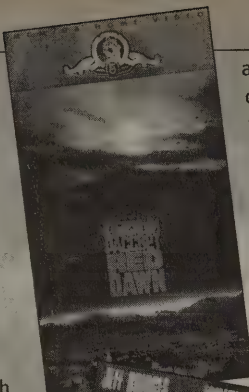
KEN BOTTO

Jay Kinney stays busy as publisher and editor-in-chief of *Gnosis Magazine*. He has also been an editor of *Whole Earth Review*. Jay has a fascination with America's edge of chaos; he makes a deep and amazingly balanced assessment of fringes. We asked Jay to focus on the militia movement and ignore equally important events like the Christian Identity movement and emerging net warfare. We searched for the accused Unabomber's reading list (no bias here) and could not find it.

Red Dawn

John Milius, Director. 1984.

An over-the-top B-movie wherein the Sandinistas, in cahoots with the Russians, invade America and are defeated almost single-handedly by a high school football team ("the Wolverines") and two teenage girls. The plot is rife with absurdities and clichés, but it does successfully capture the survivalist/militia dream of plucky "real" Americans winning back their country against all odds. Heavy-handed touches include the digs at gun control (the invaders identify potential troublemakers through their gun registration records and proceed to lock them up in concentration camps). Made while the Cold War was still going strong, the movie's villains are communists. However, craven American collaborators run a close second as traitors to be dealt with.



act. In the movie, of course, it turns out to be the hallucination of a tortured man. The OKC bombing, by contrast, was all too real.

Blown Away

Stephen Hawkins, Director. 1994.

A chilling film about a mad IRA-linked bomber (Tommy Lee Jones) who escapes from prison, and wreaks revenge

on an old comrade (Jeff Bridges) who has been working in the Boston Police bomb squad as a form of personal penance for his past. Much detail is given to intricate triggers for bombs which, one by one, blow away or threaten Bridges's bomb squad co-workers and loved ones. It is hard to imagine anyone in their right mind drawing inspiration from Jones's portrayal of a fiend settling an old score with the lives of innocents, although I suppose the OKC bombers drew their inspiration from somewhere.

Brazil

Terry Gilliam, Director. 1986.

Dystopian black humor about a deeply dysfunctional totalitarian future — 1984 done as dark comedy. Former "Monty Python" animator, Terry Gilliam, who also directed *The Life of Brian*, crafts a baroquely bleak vision of bureaucracy and paranoia run amuck, with no relief in sight. By the time the protagonist pushes the lever that detonates the Ministry of Information building, one is inclined to sympathize with the



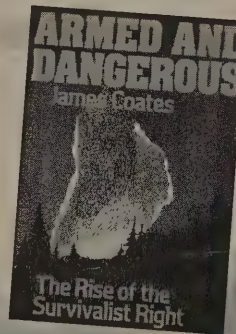
The Spotlight

Paul J. Croke, Editor. \$59/year (52 issues). The Liberty Lobby, 300 Independence Ave. SE, Washington, DC 20003; 800/522-6292.



A weekly "populist" newspaper which caters to the extreme right. It is published by the Liberty Lobby, which the Anti-Defamation League considers to be the most prominent anti-semitic organization around. The Liberty Lobby, of course, calls the ADL a front for the Mossad. Whatever the case, the **Spotlight** has been active in grousing about black helicopters and foreign tanks training on US territory and other pet peeves of the militia milieu. Any anti-semitism is largely hidden between the lines, and the **Spotlight** seems most intent on trying to build a broad constituency among the disaffected far right. The newspaper continues to give much play to far right suspicions that McVeigh is being railroaded and that the OKC bombing might have been perpetrated by the Feds themselves.

Armed and Dangerous (The Rise of the Survivalist Right)



James Coates. Hill & Wang, Inc. 1987; 294 pp. \$11.

An objective account of the extreme right milieu circa 1987. It uses the murder of Denver radio talk show host Alan Berg as its jumping-off point to survey the doings of the survivalists, Posse Comitatus, Identity Christians, and other marginalized "patriots." James Coates succeeds at portraying the mindset of his subjects without overly demonizing them, which probably won him the respect of someone like McVeigh.



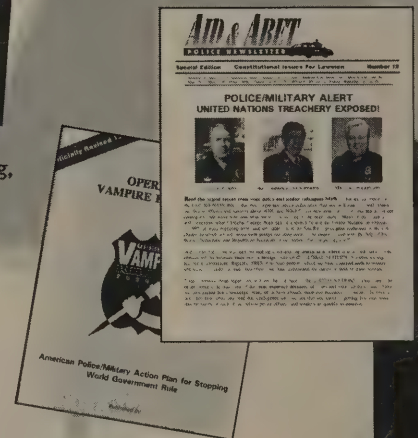
The Turner Diaries

Andrew Macdonald. Barricade Books, 1978, 1996; 211 pp. \$12.

The overheated novel about racist guerrillas ("the Organization" and its elite inner circle "the Order") taking on the Feds — and all racial minorities — in a battle to the finish. The author's real name is William Pierce. He started out with Lincoln Rockwell's American Nazis and went on to found his own proto-fascist National Alliance. This novel was cited as the inspiration for the self-styled Order who gunned down Alan Berg, robbed armored cars, and counterfeited money in the name of white separatism. Early on, the novel's protagonist helps bomb FBI headquarters, then designs a mortar attack on a nuclear power plant, and ends up helping trigger a nuclear war. McVeigh reportedly touted this book to anyone who would listen. The vision it describes is indescribably nightmarish.

Operation Vampire Killer 2000

Police Against the New World Order. \$7 (\$8.50 postpaid). Aid & Abet Police Newsletter, PO Box 8787, Phoenix, AZ 85066; fax 602/237-2444.



This document purports to be authored by and for patriotic police officers, National Guardsmen, and other local defenders of the Constitution. It identifies a treasonous Globalist plot in high places intended to give over control of US sovereignty

Gathering Storm

These are a few books that present a larger overview of how the militia movement has grown to become what it is, and that provide insight as to where all this may lead. —ET

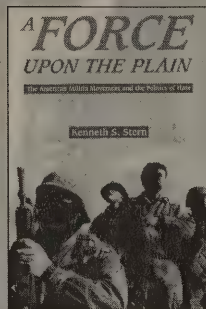
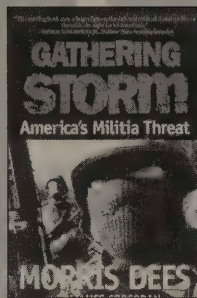
Gathering Storm (America's Militia Threat)

Morris Dees & James Corcoran.
HarperPerennial, 1996;
256 pp. \$13.

First-hand accounts from undercover investigations of militia gatherings will scare the shit out of most people.

A Force Upon the Plain (The American Militia Movement and the Politics of Hate)

Kenneth S. Stern. University of Oklahoma Press, 1996,
304 pp. \$16.95.

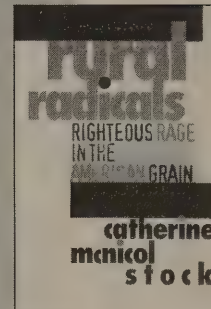


An assessment of the influence of events such as Ruby Ridge and Waco on the future of the militia movement.

Rural Radicals (Righteous Rage in the American Grain)

Catherine McNicol Stock. Cornell University Press,
1996; 219 pp. \$25.

The long view: an academic history of the tradition of hate, linked by anger, scapegoating and violence, in rural America.



to the United Nations by the year 2000. It consists largely of hair-raising (and in some cases obviously fraudulent) quotes from dozens of famous people ranging from David Rockefeller to Thomas Jefferson, none of which is footnoted to a checkable

the survivalist milieu. All efforts to obtain a copy for review have failed.

Guns & Ammo

Kevin E. Steele, Editor.
\$11.97/year (12 issues).
PO Box 51214, Boulder,
CO 80323-1214;
800/800-2666.

Published by Petersen Publications, the same folks who bring you *Rod & Custom Magazine*, *Guns & Ammo* is similarly single minded. Instead of cars, however, the emphasis here is on

800/877-5207.

Long a favorite of the paramilitary subculture, *SoF* presents itself as a trade journal for mercenaries. Each issue features articles on local political hot spots, weaponry, conventional and unconventional warfare, and the like. It is grimly fascinating to observe amoral soldiers-for-hire portrayed in its pages as noble defenders of the Free World. One assumes that the majority of *SoF*'s readers are arm-chair warriors, which is probably just as well.

Birch Society, here's the voice of reason regarding US invasion paranoia — a bridge between the far and extreme right.

Relevance

Philip M. O'Halloran, Editor.
\$110/year (12 issues).
Relevance Corporation,
320 E. Maple Road, Suite 297,
Birmingham, MI 48009-989;
800/626-8944;
www.radioamerica.com/relevance.

Well-written, well-documented. If you want to read possibly the best-written case for the distrust of government, this is the publication.

The Freedom Networker

T.C. Fry, Editor. \$24/year (6 issues). The American Freedom Network, 42015 Ford Road #260, Canton, MI 48187.

More Voices Against the Tyranny

These mags were not found in McVeigh's home, but are influential items of the same ilk that might be worth knowing about.

The New American

Gary Benoit, Editor.
\$39/year (biweekly).
American Opinion Publishing, 770 Westhill Boulevard, Appleton, WI 54914, 414/749-3784.

Published by the John



source. If taken at face value, the cumulative effect of this exercise in conspiracy theory is to convince the uncritical reader that the Federal government is in the hands of traitors intent on enslaving the citizenry.

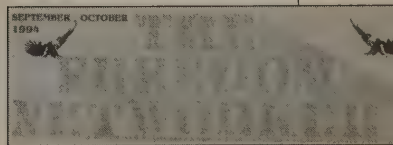
Patriot Report

This is one of dozens of underground/alternative publications circulating in

guns. Hunting, self-defense, military, *G&A* has them all, with in-depth reviews of Remingtons, Walthers, Mausers, etc. *G&A* sports a strong pro-second amendment stance, as one would imagine.

Soldier of Fortune

Robert K. Brown, Editor.
\$29.95/year (12 issues).
PO Box 348, Mt. Morris,
IL 61054-9817;

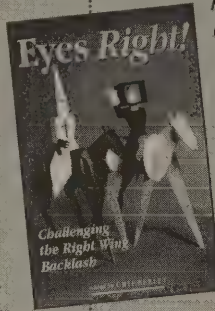


Good for keeping tabs on the rumor mill — all stories are given credence. It appears anyone can say anything. —JK ⊕

'Resistance to tyrants is obedience to God.' —THOMAS JEFFERSON, AS QUOTED BY THE SPOTLIGHT.

A Potentially Bloody Red Pages: Access to Watchdog Groups

The blurry lines between conviction, action and violence: how do we figure out who might cross them, when will they advance from menacing threat to present danger? Is simply knowing enough to prevent random tragedy? We're searching for more awareness, not more harmful paranoia. A good reminder from Jay Kinney: when looking at the work of any organization, maintain a critical eye — everyone is capable of having, consciously or not, an ulterior agenda. —ET



Right! Challenging the Right Wing Backlash, edited by Chip Berlet, is their major exposé of the motives and goals of the right (1995; 398 pp. \$17 from

South End Press, 800/533-8478). The *Public Eye* is a quarterly of right-wing trends (\$29/4 issues).

Center for New Community

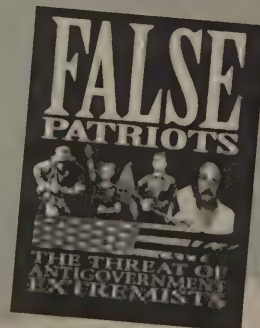
6429 W. North Avenue, Suite 101, Oak Park, IL 60302; 708/848-0319.

An important faith-based initiative countering the distortions of the Christian Identity movement with education and training, especially in the religious community. Publishes topical *Citizens' Guides* and a more newsy *Midwest Action Report*.

Klanwatch

Southern Poverty Law Center, 400 Washington Avenue, Montgomery, AL 36101-0548; 334/264-0268.

Publishes *False Patriots: The Threat of Antigovern-*



Who to Call When Hate Groups Come to Town

Center for Democratic Renewal

PO Box 50469, Atlanta, GA 30302-0469; 404/221-0025.

The support group for grassroots, community-based organizations in countering the influence of hate groups. Publishes numerous reports and books, including: *When Hate Groups Come to Town: A Handbook of Effective Community Responses* (1992; \$18.95). Everyone says this is the crucial guide. Must be selling like hotcakes, as copies were not available when we went to press.

Political Research Associates

120 Beacon Street, Suite 202, Somerville, MA, 02143; 617/661-9313, www.public-eye.org.

Their website is a good one-stop shop. They have a loaded library and resource center, with a bias toward right-wing verbal and

armed violence, from the Republican party to armed citizen militias. PRA makes available a thorough list of their own and others' topical books, information packets, article reprints, and extensive reports. *Eyes*



ment Extremists — the top beginners' entry point into the vast morass of anti-federal government and rhetorical activism. *Intelligence Report* is a quarterly monitor, by city, of the threats and crimes committed by militia, Patriot, Klan, neo-Nazi, skinhead, Identity, and other extremist groups. Klanwatch's Militia Task Force was launched in 1994, but the group has a long history of disseminating information on KKK and other white supremacist groups.

Anti-Defamation League of B'nai B'rith

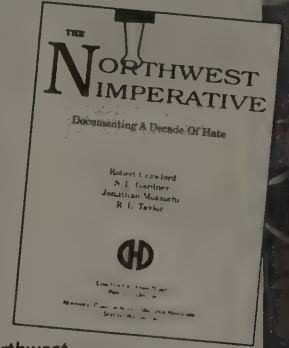
823 UN Plaza, New York, NY 10017; 212/490-2525 (many regional offices).

National monitors of extremism on right and left. Its major resource, *Danger: Extremism: The Major Vehicles and Voices on America's Far-Right Fringe*, is a literal who's who of the "patriotic": militias, KKK, neo-Nazis, racist skinheads, et al.

Coalition for Human Dignity

PO Box 40344, Portland, OR 97240; 503/281-5823.

Top research and monitoring resource for the northwest, with model publications for other regions. *The*



Northwest Imperative: Documenting a Decade of Hate, by Robert Crawford, S.L. Gardiner, Jonathan Mozzochi, and R.L. Taylor (1994), is a virtual fieldguide to regional hate groups. *Guns &*



Gavels: Common Law Courts, Militias & White Supremacy, by Devin Burghart and Robert Crawford (1996; 52 pp.), is the best intro

to quiet title and citizen common law court claims to federal land. Membership includes the *Dignity Report* (journal, \$30/4 issues).

Quiet Title — a common law court action acknowledging the "sovereignty" or "state citizenship" of an individual, declaring such an individual to be a "freeman" over whom the government has no authority. Granting Quiet Titles is often among the first actions of a newly formed common law court. —GUNS & GAVELS



JEREMIAH NATHAN

Montana Human Rights Network

PO Box 1222, Helena, MT 59624; 406/442-5506.

Organizes community human rights groups statewide to educate and to increase legal and public policy protection for people targeted by hate activity. Publishes *Network News*, a monthly newsletter.

Northwest Coalition Against Malicious Harassment

PO Box 16776, Seattle, WA 98116; 206/233-9136.

Strong emphasis placed on community organizing, presentations, awareness raising, and provision of resources and guidance for this region that is experiencing an increase of bias

crime and organized bigotry. Their newsletter, the *Northwest Beacon*, and an annual conference help strengthen resistance.

Consultants and Legal Advisors

Center on Hate and Extremism

Richard Stockton College, SOBL/H210 Jim Leeds Road, Pomona, NJ 08240-0195; 609/652-4719.

Started by attorney and former NYC cop, Brian Levin, CHE has a broad civil rights focus — it tracks, researches, and analyzes hate crimes, trends in extremism, legislation, policy, congressional testimony, and court cases.

Forecasting International, Ltd.

505 Hampton Park Boulevard, Unit C, Capitol Heights, MD 20743; 703/379-9033.

Dr. Marvin J. Cetron, the president of this think tank (forecasting, assessment, and strategic planning) has gathered information on international terrorist organizations, including an exhaustive list of the "Major Groups," for his forthcoming book (with Owen Davies), *Terrorism 2000: The Future Face of Terrorism*. Prepared for the Department of Defense, it will outline who the terrorists of the future will be, what they will be after, and the weapons and tactics they will use. ⊕

School of the Americas Watch

PO Box 3330, Columbus, GA 31903; 706/682-5369.

School of Assassins

Narrated by Susan Sarandon. 1995; 18 min. video. \$17.95 post-paid. Maryknoll World Productions, PO Box 502, Maryknoll, NY 10545; 800/227-8523.

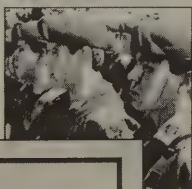
A citizen group founded by Father Roy Bourgeois whose sole effort, through civil disobedience and support of the Kennedy Bill, is to close the US Army School of the Americas operating in Ft. Benning, GA. This institution is reported to have trained 60,000 Latin American soldiers, many of whom have carried out gross civil rights

abuses and murders in their own

countries. SOA Watch co-produced the excellent, scary, Oscar-nominated documentary video, *School of Assassins*, showing the graduates at work. A booklet, "The Truth Cannot Be Silenced..." documents the trial testimonies of 13 activists sentenced to prison terms. SOA Watch is a good model of organization for protestors of US hate groups. —ET

School of Assassins

1995 Academy Award Nominee

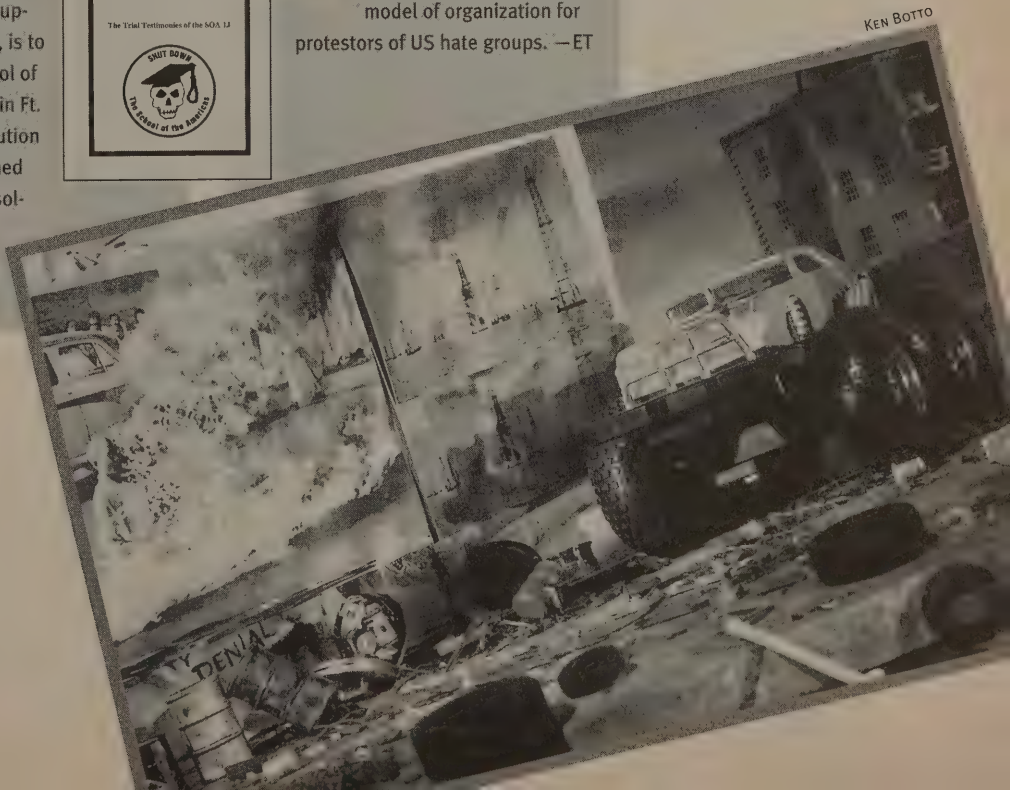


The Truth Cannot Be Silenced....

The Trial Testimonies of the SOA 13



Member of the Lords of Chaos.



KEN BOTTO

How to Hide Things

(In Public Places)

Dennis Fiery; 1996. Loompanics Unlimited. Port Townsend, WA.

So your boss has gone home for the evening and inadvertently left the plans and enabling codes for the Stars Wars

Defense System spread out on his desk. *The Costa Ricans would pay big bucks for this, you think, worried about your next house payment, lack of a dental plan, and that forthcoming trip to Vegas.* You hurriedly cold-boot the Xerox, run off a couple copies of the documents, and return the originals. Now comes the hard part. How to swap the documents for cash without revealing your identity or engaging in face-to-face trade-

offs? Moreover, is it prudent to stash the evidence in your house? Even Whittaker Chambers had the good sense to hide his microfilm in the pumpkin patch!

Exchanges can be made using dead drops, and virtually every imaginable public space from parking lots to libraries to department stores offers secure long-term storage options. For the more ambitious, Fiery offers detailed plans for "secret" hiding places constructed expressly to blend into the public environment. And then there are the "innocent bystanders," anyone from a store clerk to a homeless person, who will unknowingly assist you if approached with the right pitch. Whether you need to hide last month's AMEX bill or a disposable shoulder-launched missile system — where there's a will, there's a way. Now if only Fiery would write a companion volume on how to find those lost car keys. . . . —Patrizia DiLucchio

"Video rental stores (and libraries that rent videotapes) always find alien tapes in their drop boxes. They find customers' home video tapes, and movies from other stores. . . . That's where a little number like this comes into play. This is a Video Tape Safe available from the Johnson Smith Company catalog. These fake hidey

tapes were meant to be used in the home to hide jewelry from burglars. But they can just as easily be applied to public hiding as well.

Fill the videotape,

then slide it into the box. Label the box with your name and phone number, and "return" it in the drop box of any video store. If you want to hide stuff anonymously, leave off the label. Then you or a friend can walk in later and say, "Hey, I think I put my tape in your drop by mistake." Coincidentally the tape will just happen to be there! Notice that this method is effective for one-way transfers of materials. Just put the recipients' name and number on the tape. The stores keep alien videotapes around for a while in hopes that someone will claim them.

David's Tool Kit

(A Citizen's Guide to Taking Out Big Brother's Heavy Weapons)

Ragnar Benson. 1996; Loompanics Unlimited, Port Townsend, WA.

Homemade thermite

grenades, flame-throwers, smoke bombs, and the ultimate Molotov cocktail. Gil Scott-Heron used to say, "The Revolution Will Not Be Televised," but we all know that he was wrong — we've seen too many pictures of civilians armed with gasoline-filled soda

bottles taking on tanks! Ragnar Benson explains how modern-day Davids can slay Goliath in his latest manual on making urban war. Truthfully, some of the joy of mixing nitrate fertilizer and fuel oil in the bathtub and blowing large holes in the backyard has faded in the wake of Oklahoma City and the World Trade Towers. But things that go boom never fail to fascinate. Benson's bang is formidable. —PDIL

"In their simplest form, Molotov cocktails are little more than easily breakable bottles filled with gasoline and oil, around which a gasoline-soaked rag is wrapped. Upon deployment the rag is flamed, and off one goes to dash the burning mass against a target. . . . In practice, it isn't that simple out on the ground. In the first place, the fuel load needed to take out modern heavy equipment must be high, necessitating a heavy device. Stories abound of users who tried to use Coke bottle Molotovs and failed. Coke bottles won't easily break, and the fuel load is far too limited.

How to Use Mail Drops

(For Profit, Privacy And Self-Protection)

Second Edition. Jack Luger; Loompanics Unlimited. Port Townsend, WA.

The library knows what you're reading, and those seemingly benign terminals at Blockbuster know what movies you watch. The Post Office will sell your change of address to any interested parties; TRW controls your access to credit; and who knows what

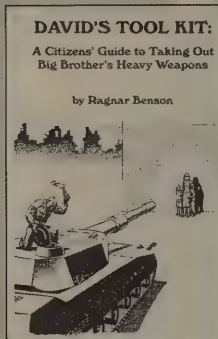
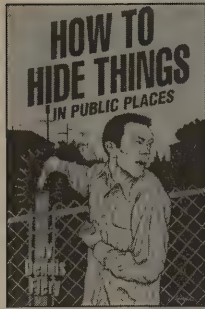
secrets your meter reader could tell? There are any number of good reasons to create holes in your paper trail. One of the oldest and best ways to keep the blood-

hounds at bay is a simple mail drop: a place where you can be reached that is neither your home nor your job, that may not even know your real name.

What, you thought that Mail Boxes, Etc. exists to sell you Styrofoam peanuts and wrap UPS parcels? Ha! Millions of Americans find it convenient to preserve a semblance of anonymity by not receiving their credit card statements, specialty magazines, or Loompanics catalogs at home! If you're one of them, Luger's book is a must-read. —P DiL

"Email providers also house email remailing services that strip out the header and other identifying information, then send your message to its destination anonymously. However, some of these anonymous electronic remailers may be operated by government agencies for the express purpose of scrutinizing secret mail. There's a better way.

Sign up with a computer network under an alias, and list a totally false address. Use a bank account under that name for electronic payment of monthly fees, replenishing that account by deposits at an automated teller machine. Once you receive your password, you can obtain access from literally any telephone, even a pay phone, with a laptop computer and a modem. Even if you sign your name, nobody can trace your physical location because uploading messages takes so little time.



A participant at the 1993 Viking Days in Vancouver, WA, an event associated with the Asatru Alliance, a far right Odinist organization.



Time out. The most secure and comfortable locus. Hearth, relaxed self, shelter. Where most cooking takes place in Mind and for the Body. Home tools: sponge, gossip, wrench, advice. Gathering and regenerating before crossing the threshold to neighborhood, watershed, community, or the more chaotic and challenging "world."

Inviting the Goddess into the Household

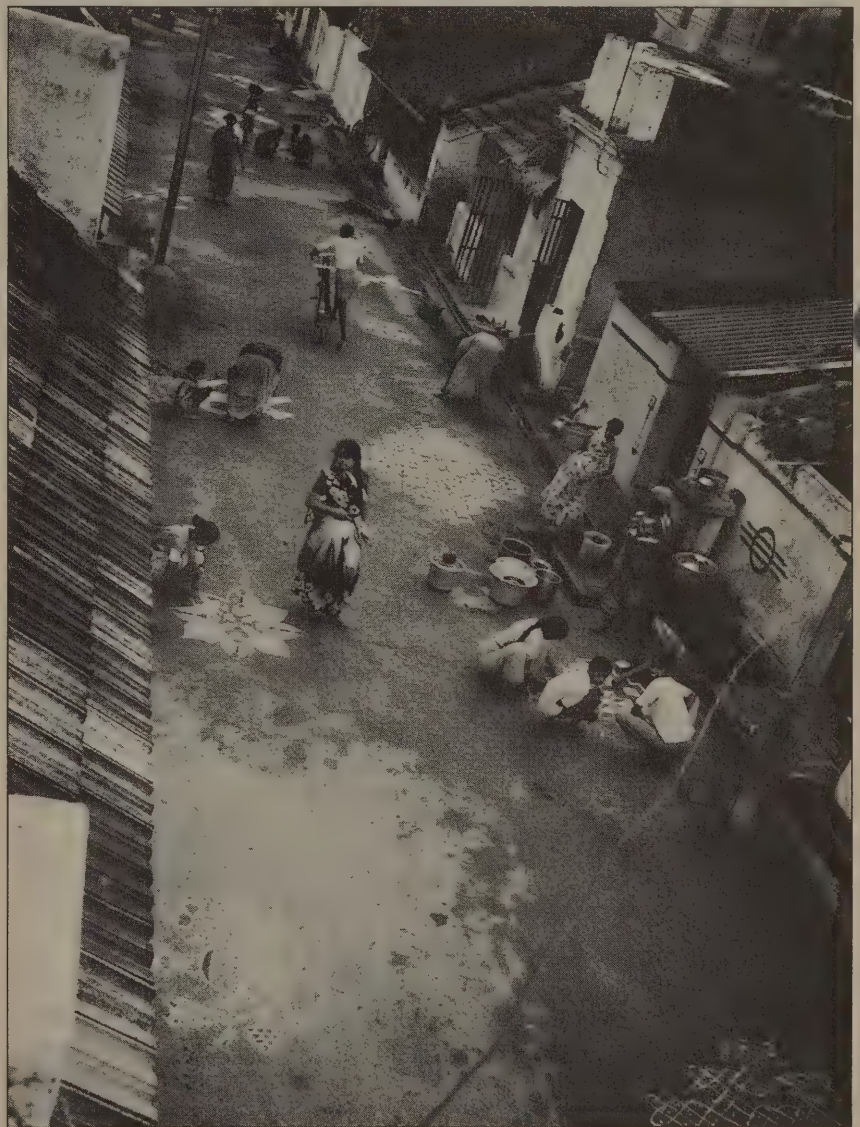
Vijaya Rettakudi Nagarajan

Women's Kolams in Tamil Nadu

AS A CHILD, I WATCHED MY MOTHER CREATE *kolam* patterns in front of our house. These elaborate rice flour patterns were as much a part of my life as the school I went to, the bed I slept on, the books I read. I remember the first time I learned how to make a *kolam*. I was nine years old, squatting in front of the *thinnai*, the raised front porch of our ancestral home in Rettakudi. The house, with its long corridor going from front to back, had raised steps marking the thresholds into each room. Although the *kolam* was painted on each of these thresholds during a festive occasion, the most important *kolam*-making space was at the front of the house. This *thinnai* area, where the house met the outside world, the private familial realm encountering the community realm, was painted daily. Called *vayirpati* in Tamil, literally "front threshold," it held strangers and friends, agricultural workers and landlords, the invited and uninvited.

I remember the feeling of the hands of my mother and my grandmother, curving lightly over my small right hand, gently guiding my trembling fingers. Rice flour was clenched in my fist. In trying to make sure not a bit of it spilled accidentally, I was feeling the awareness I felt whenever I held rice in my hand. So often I had been told by my elders that if even a few grains of the precious rice were to fall on the ground in wastefulness, carelessness, or thoughtlessness, the goddess of rice, earth, and wealth, Lakshmi, from whom this bounty flowed, would stop entering our threshold. If neglected by Lakshmi, our family could become impoverished and hungry.

Kolam-making involved pouring rice flour through the fingers with an even flow, almost as if you were pouring "dry water" from the hand. As the rice flour fell in uneven clumps that in no way resembled the beautiful carpet-like drawings in front of the



A street with kolams during Pongal festival, central Tamil Nadu (1991). *Kolam* making flourishes during the Hindu ninth solar month Markali (mid-December to mid-January). Some women say that at this time the doorways between the divine and the earthly are wide open, that a beautiful *kolam* attracts the gaze of the deities and welcomes them into the home.

neighboring houses, I felt a sense of deep embarrassment and shame. After a week of failed attempts, I began to get the hang of it. I watched other village girls my age do it with ease and this made me more eager to catch on. As I became more adept, I vaguely sensed that making a kolam was one of the signs of Indian womanness.

Kolams in Maryland

A few years later, we stopped making those summer visits to the ancestral house in Tamil Nadu. During the rest of my childhood, after our family migrated to Washington DC, my concerns revolved around how to balance my love and respect for Indian culture with the intoxicating assimilation that was encouraged and supported by my American teenage friends. Among my first US memories was the image of my mother making the kolam every morning in front of the threshold of our suburban Maryland home. I remember waking before sunrise to the sound of her scraping the ice and snow off the threshold during heavy winter snowstorms. Storing the ground rice flour in a recycled Gerber's bottle, she would paint, sometimes with wet sometimes with dry rice flour, on the cold slate in the half-darkness of early morning.

In traditional Tamil culture, crossing the threshold was a major self-conscious event. For us, this cultural distinction was underlined further by the difference between the American and Tamil culture. The kolam acted as bridge between the inner and the outer worlds; between what can be controlled and what cannot be controlled; between domestic and public space; between our private and social lives.

Geetha of Madurai

The Tamil people live in Tamil Nadu, a south Indian state bordered on the east by the Bay of Bengal and on the west by a long range of mountains, the Eastern Ghats. Madurai, on the dried riverbanks of the Vaigai River, is one of the great temple cities of Tamil Nadu. There, each morning, just before slivers of sunlight crack open the dark horizon, a twenty-nine-year-old Tamil woman named Geetha steps over the night-blackened doorway of her family home. As she faces the slowly emerging sunlight, she prepares the "canvas" on which the kolam will be drawn by sweeping the front porch area with a broomstick made of coconut frond. The sound of her family broomstick striking the earth echoes the varying rhythms of other women cleaning their front thresholds.

The kolam, a sacred space and ephemeral rug, is created daily by millions of Tamil Nadu women and tens of millions of women throughout all of India.

After carefully sweeping away yesterday's dirt and kolam remnants, Geetha turns back into the house, walks through several doorways lined up in a row, steps over the back threshold, and approaches the brick-lined well. She draws water with an aluminum bucket. She gathers fresh cow dung from the cowstall and hurries back through the house, leaning slightly to the left from the weight of the water. After mixing the cow dung and water with her hand so that no lumps remain in the mixture, she splashes handfuls of cow-dung-water over the earth. Cow-dung-water is antiseptic, one of the primary ingredients in the creation of a pure unpolluted canvas. Once again, she sweeps the wet surface with the coconut frond, creating a brushed effect.

She then bends over, stretching far from the waist to reach the edges of the visualized framed space that will hold her rice-flour designs. Using a half coconut-shell for a bowl, Geetha pinches the rice flour and deftly translates it into patterns. In these purposeful hand movements, Geetha creates designs that can be geometric: concentric squares, interlocking triangles facing opposing directions, elaborately adorned circles, labyrinths of dots and lines that circle around a series of dots but never touch them. Or she may create figurative designs: pairs of peacocks, a squirrel crunching a walnut, a Bharata Natyam dancer in cobalt blue and chick yellow, or even a schoolboy in the middle of a soccer kick.

When the kolam is finished, sometimes hours later, it is an ephemeral rug that is worn away during the day under the feet of passersby, neighbors and wanderers, as well as those who cross the threshold of the house. Sacred space has been created by the purposeful cleaning, wiping, ordering, and adorning of a particular area.

Ritual Kolams

In Tamil the word "kolam" means "beauty, form, and play." Although the making of the kolam is a daily ritual, it is created with a sense of both play and duty among girls and women. Quiet, still afternoons when everyone else would be taking an afternoon nap are filled with sketching and drawing simple or



Geetha has been painting the kolam since she was seven or eight years old. At the moment, she enjoys popularity as one of the best kolam-makers in Madurai. She volunteers at local temples, where

she carpets the floors with her delicate and strong hand. Her handwork is unique. In all of my interviews I have rarely encountered anyone with such sensitivity to the significance of the kolam.

elaborate kolams in rough ledgers. Plans for the next day's kolam are made, remade, and talked about; the kind, the degree of elaboration, and the colors of the kolam that will be drawn on the threshold the next morning are all seriously discussed.

There are a lot of "shoulds" with the kolam. But they are not hard and fast rules that everyone follows strictly; rather they are guidelines that can be broken if the need arises. Some of these "rules" include the idea that the kolam should be created before sun emerges out of the horizon. My mother and many other kolam-creators would say that it is inauspicious to create a kolam in daylight. Kolams applied after sunrise might imply a lazy woman who wakes up late. The absence of a kolam on the threshold could tell the passerby that there has been a death in the family, or that the woman of the household is in a menstrual state, or even that there are no women in this household. It could also speak of an extremely busy working woman who labors in the fields from early morning to night.

The presence of the kolam is an informal way of signaling information about the family residing in the household to the outside world, indicating that people in the home are in good health, in reasonable abundance, and even that the household may be hospitable. To sadhus, holy men and mendicants, the kolam is a sign that perhaps that day they can expect a bowl of rice. The absence of a kolam can also tell the passerby of the household's inability to be hospitable to a stranger or friend

The kolam should be done with rice flour. One of the most frequent answers to the question of why the kolam is created is that it is an offering, a gift to small, non-human creatures. Because the rice flour feeds ants, birds, and other animals, the kolam reveals one's thoughtfulness to other creatures. The day begins more auspiciously if one practices *danam*, the act of giving, as the first act of the day. Some women also told me with a grin, "Perhaps feeding rice flour to ants and insects in the early morning fills their stomachs; they go on about their business and don't bother you the rest of the day."

It is no accident that the kolam is done on thresholds. The threshold is considered dangerous and an awareness of the thresholds of places (houses, villages, towns), persons (genders, ages, stages of life), and of boundaries in general pervades the Tamil world. Ephemeral rice flour lines mark, create, and maintain boundaries in the cultural web of everyday Tamil life. The kolam exemplifies the ritual

importance of the threshold; it parts the inside from the outside, the protected and "safe" world of the home from the more dangerous, vulnerable, and unguardable world of the outside. The woman householder's first crossing of the threshold helps protect her husband, children, and household from harm, illness, and injury throughout the day.



Inviting the Goddess Lakshmi into the Home

Through the making of the kolam, the Tamil woman creates an ephemeral shelter for Lakshmi and invites her into her home. Geetha elaborates on the relationship between the kolam and Lakshmi. "The kolam helps the goddess come and be there. You create a seat for her. She comes and watches your household for you." Lakshmi actively directs wealth, health, and happiness into the household and simultaneously wards off misfortune, illness, and grief.

More important, rice flour is seen as an offering for Lakshmi. In an agricultural economy where wealth is still largely measured in terms of one's access to rice, rice fields, and rice products, the goddess of rice holds a vital place in the cultural imagination. Through the kolam, women act out their roles as protectors and caretakers of the family and household. The woman of the house is referred to as Lakshmi; like the goddess, she has the power to attract wealth and prosperity into the household and prevent poverty from entering. The ritual of the kolam solidifies this relationship.

This past winter, I met with a very knowledgeable elder woman, whom I called *patti*, or grandmother. During one of our many conversations she told me,

Pongol kolam on threshold in Thirunelveli District, Tamil Nadu; waiting for the rice to boil over.

“You know, Vijaya, the real reason we do the kolam is to banish Moodevi. Do you know the story of Moodevi and Lakshmi? Lakshmi and Moodevi were sisters. They had a fight over who was more beautiful. They argued and argued, and finally decided to pick an arbiter to end their quarrel. The three gods, Brahma, Vishnu, and Shiva all agreed to sit and hear the case. When the three gods conferred, they came to a compromise that satisfied both sisters.

“They said, ‘When Lakshmi walks toward you, she is more beautiful. Her front half is lovely. You know who Moodevi is! She is goddess of sleep, restfulness, laziness, and even poverty and scarcity. So she looks more beautiful when she walks away from you.’ Lakshmi is the goddess of wakefulness, abundance, and wealth. When you wake up in the morning, kolam

The kolam acts as a net, a catcher of emotion-laden feelings, and a protective screen for the emotions cast out by those who pass by the doorway or who cross the threshold.

the community to deal with jealousy and covetousness within themselves and others. These emotions are considered to be so strong that they have the potential to wreak chaos in a community in the same way that a disease can devastate its health. The eye can covet an object. When the envious eye touches the desired object, it can affect the well being of the object. The kolam acts as a net, a catcher of emotion-laden feelings, and a protective screen for the emotions cast out by those who pass by the doorway or who cross the threshold.

Geetha, the brilliant kolam-maker, during one of our many conversations, suddenly revealed that, “The reason the kolam is drawn is to prevent the effect of the evil eye.” In Tamil the word *dhrishti* or *tirusti*, means “sight, eye, or evil eye.” When I asked, “What is the evil eye?” she immediately replied, “The evil eye is carried around by ghosts, demons and bad spirits.” I then asked, “Where are these malignant spirits located?” She replied with an authority and certainty that belied her youthfulness:

“Vijaya, the malignant spirits are not necessarily wandering around in demon form outside of ourselves. Most of the time the demons are in you and me.



Large labyrinth kolam made by firewood merchant's daughter. Tharjavur District, Tamil Nadu.

banishes Moodevi and invites Lakshmi in. This story is not meant to insult Moodevi; because you need Moodevi, too. In the evening, when you are trying to go to sleep, if Moodevi doesn't come to you, it is very painful and difficult for the body. It is just to say that there are appropriate times to rest and to wake up.”

News travels fast in India and I wasn't surprised when another woman came by. She was just beginning her job for the day, sweeping the small town. She said, in a loud voice so that everyone could hear, “Hey, I hear you are asking everyone why we do the kolam. You haven't asked me, but let me tell you the real reason. It is to show that we are household women, not prostitutes. Why would a prostitute need a kolam? So, the kolam shows you are not a prostitute, you are a woman of the house. It shows you spent the night there. Write that down in your notebook, will you?”

The Evil Eye

The making of the kolam is also connected with the Tamil concept of the evil eye, which is bound up with the ability of the individual, the family, and

Far right: A different kolam for each threshold.

Whenever you are just walking down the street and find yourself envious, jealous, full of puramai, or thinking of someone with evil intentions, your own evil eye can affect the person you are thinking of. It can directly affect that particular person's house, children, health, and everything that belongs to them. This force of emotion can be from your unconscious or conscious. You may not realize you are being jealous of someone. But that is why, you see, you need to protect others and yourself with the kolam. If you have a house, and you think how beautiful and attractive you are, or how beautiful and attractive your house is, then you can cast the evil eye on your own self, your body, your family, your house. That is why you need to protect yourself from the effects of the evil eye. Now you cannot get too vain about making the kolam. If I get vain and boastful about the fact that I have made beautiful kolams at local big temples and even that you have come here to talk to me, I can destroy myself with the effects of my own evil eye and as well as others' evil eye. The demons of covetousness can eat me up. This is very important. Do you understand now?"

The kolam acts as a catcher for people's ill feelings toward each other. In general people are very careful about praising anyone excessively because of an awareness that their own conscious and unconscious intentions behind the praise are unclear. Envy coming from within the community is believed to be one of the most dangerous forces around. It is therefore publicly condemned and resisted on a personal and community level.

Changing Times, Changing Kolams

Throughout this century, kolams have been changing. Recently the rolling stencil-like pin has changed from aluminum to a polyvinyl chloride pipe pierced with holes. The plastic, stick-on kolam or decal has also obliquely entered the scene. Although the plastic stick-on kolam rarely takes front stage, it is used as an extra decorative element inside the house. There are now contests for the best-made kolam, held in women's magazines.

Geetha has added a new twist to the traditional kolam: she also paints with acrylic on the temple floors. Instead of disappearing in one day, as the kolam would if it were made out of dry rice flour, or lasting a few months with the wet rice flour mixture, the acrylic kolam lasts all year. As one temple after another discovers her skills in painting kolams with more permanent acrylic, she is becoming known throughout Madurai and its surrounding temples. As a traditional ritual practitioner, she is at the cusp of the shift from traditional to modern materials.

One of the trends disturbs many women: as rice flour becomes more expensive, more and more women are turning to ground stone powder and

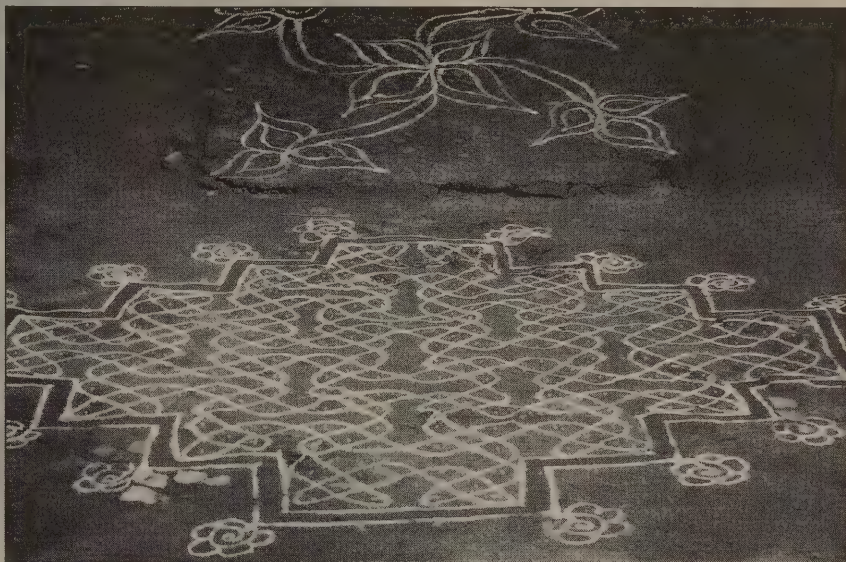
switching from local plant dyes to commercially bought colored powders. If one of the original reasons for making the kolam was to feed ants, insects, and small animals, then how can an animal be fed on stone flour?

One woman said with sadness, "It shows you how much we have lost the reasons for doing the kolam, how much we are forgetting why we do this." Kolam-making leans increasingly towards an appreciation of its artistic skill rather than its original ritual purpose.

A Resting Point

The rising sun, the rooster crowing in the backyard, and the rice flowing through the hand, kolam-creating speaks of a world to be sustained for another day in the chorus of women's rituals. Kolams merge the emotional heart of the household, hospitality, kinship, and

Labyrinth or "pulli" (dot) kolam framed with red ochre border.



the creation of beauty into the entire community. The brilliant Tamil dancer and choreographer, Chandralekha, who is also a brilliant writer and thinker on the kolam, reckons:

"The kolam is kind of yoga, it stretches the body early in the morning; it extends the spine and the woman is stretched. One time I made kolams non-stop for a few days. I kept on making variations and new designs. After some time of playing around with this kind of geometric thinking and feeling, everything around me became points, dancing points in space, stretching out towards infinity." ☉

Vijaya Nagarajan is exquisitely bicultural. Equally at home speaking Tamil or English; spending time both as child and adult in India. Her spirit and intellect are contagious: UC Berkeley gave her the job lecturing on non-Western religions and South Asian literatures before she had a PhD. Vijaya currently thinks about and investigates cultural notions of "waste" and "art." In 1992, while on a Fulbright, she talked with many of the women who appear in this article, who

will appear in more detail in an upcoming book. Ten years ago, she founded The Institute for the Study of Natural and Cultural Resources (a "backpack" scale nonprofit) which she co-directs with her husband, Lee Swenson. A longer version of this article appeared in *Mud, Mirror and Thread (Folk Traditions of Rural India)*, edited by Nora Fisher, Museum of International Folk Art. Published by Mapin and the Museum of New Mexico Press. Reprinted by permission.



chair



Conquered the World

Pull up a chair. And take a good look at it.

It forms our bodies. It shapes our thinking. It's one of the first technologies an American or European child encounters. No sooner has a child been weaned than it learns to eat in an elevated model. At school, the chair is one of the most common objects in the classroom and among the first words a child learns to read and write. Despite all its variations, the chair could almost stand for the whole "domain of middle-size dry goods," to use the philosopher Charles Taylor's phrase.

In the West, we prefer to contemplate nature without too many chairs obtruding. We picnic on the grass and spread blankets on the beach. But in artificial settings, there is something disconcerting about the absence of chairs. The "festival seating" — that is, none at all — introduced by post-Woodstock concert promoters soon connoted not celebration but chaos and violence. The standing-room-only arrangements of many British football stadiums in the same period amplified hooliganism and turned small perturbations into fatal stampedes. Chairlessness as dehumanization was carried to a nightmarish extreme by the infamous mass transports of the prewar Reichsbahn and the Soviet gulag.

Chairs go a long way toward filling a vacuum. They act as our proxies, claim space for us. The New Jersey Transit rail line between Princeton Junction and

New York passes a large, new, nondescript condominium near the station in downtown Linden; almost half of the apartments have plastic chairs on their balconies, yet I have never seen a soul sitting in them at any hour I passed by. The chairs seemingly are not for human use but rather for filling

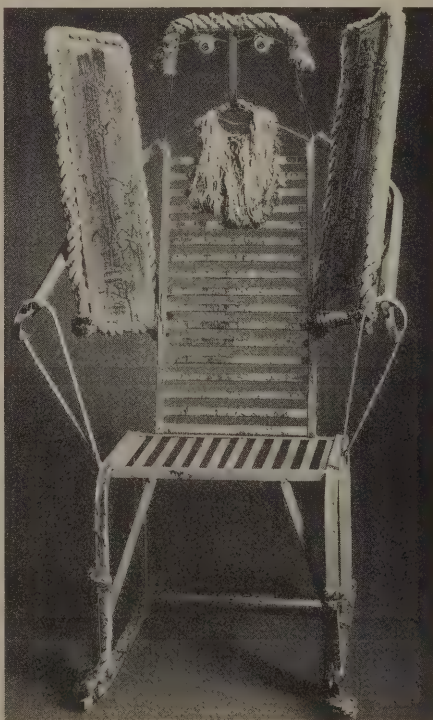
Edward Tenner casts a sharp eye at objects that shape our behavior, even our bodies, while we take them for granted. His recent forays into material culture include hats, gates, sports technology, the file card and the information implosion. A visiting researcher in geoscience at Princeton, he is the author of *Why Things Bite Back: Technology and the Revenge of Unintended Consequences* (see p. 58).

otherwise empty niches in the building's exterior.

Yes, chairs are in every sense fundamental to us. Curiously, though, they are neither essential nor especially healthful even in industrial and postindustrial societies — even if a few activities probably do demand them. Until relatively recently, the majority of the world's people rarely used chairs, and many still do not. Yet chairs have spread inexorably around the world, occasionally promoted deliberately by Western rule or influence but more often spontaneously adopted. The change has been one of the most thoroughgoing and apparently irreversible in the history of material culture. Essential parts of this spontaneous technology transfer are still obscure. But in every sense, the fortunes of the chair illustrate human malleability — and society's construction, reconstruction, and misconstruction of the human body. Once people begin to spend most of their lives in chairs, they are removed as though by ratcheting from their original ground-level ways; individual return may be hazardous, and social reversal has been unknown. Whole civilizations, in adopting chairs, literally change not only their posture but their point of view.

The chair's history is made up of several stories.

The first is a functional and a negative one: chair seating was not predestined to dominate modernized humanity. Western specialists themselves branded it a health hazard, but only after it had become such a standard that radical change became almost impossible, as would later be the case with computer keyboard layouts. The second story is a symbolic one: physical elevation appears to be a mark of prestige and power in nearly all societies, yet for centuries raised seating (including objects similar to Western chairs) never went beyond its ritual boundaries in nonchair societies. The third story is a material story: the chair as a European



Richard Dial, *Comfort of Moses*. 1988, Steel, wood, hemp, enamel, paint. Collection of the Museum of American Folk Art. Purchase made possible with grants from the National Endowment for the arts and the Metropolitan Life Foundation.

cultural good adopted less for economic than for social reasons, a slow but relentless change. And the fourth is functional again: the chair finally makes itself indispensable by inducing changes in the bodies of its users. Yet those users have second thoughts, and begin their own experiments in ground-level living.

Europeans and Americans occasionally are disconcerted to see Asians, individually or in families, sitting in airports or even at urban bus stops, preferring squatting or other ground-level positions to standing or raised seating. They may be feeling envy because chairs in most Western public spaces are so appalling. (The *Newark Star-Ledger* reported in 1989 that the Port Authority was installing "specially designed, uncomfortable seats" in its New York bus terminal. They remain.) But the feeling may also be wonder at seeing a remnant of an allegedly preindustrial, agrarian way of living. Western technology, with its operatives seated at everything from farm tractors to computer terminals, seems a functionally chair-borne way of life. In the West, the closest we come to a floor-sitting worker is the cross-legged hand tailor, laboring in the shadow of sewing machines designed for chair operation. (The British columnist Bernard Levin once gloated good-naturedly to his readers that, having grown up in an East End needle-trade family, he could sit cross-legged and they couldn't.)

But floor- or mat-level seating could have been and could still be perfectly functional. The same technologies that let paraplegics operate machinery of all kinds without the use of foot pedals (seated in chairs, but only because the rest of Western society is) could also allow design of lower-profile automobiles, truck cabs, and even aircraft controls. Computer monitors and keyboards could be used at precisely the heights at which scribes and scholars composed masterpieces of science and literature in ancient civilizations from Egypt and the Americas to Asia. John T. Bonner,

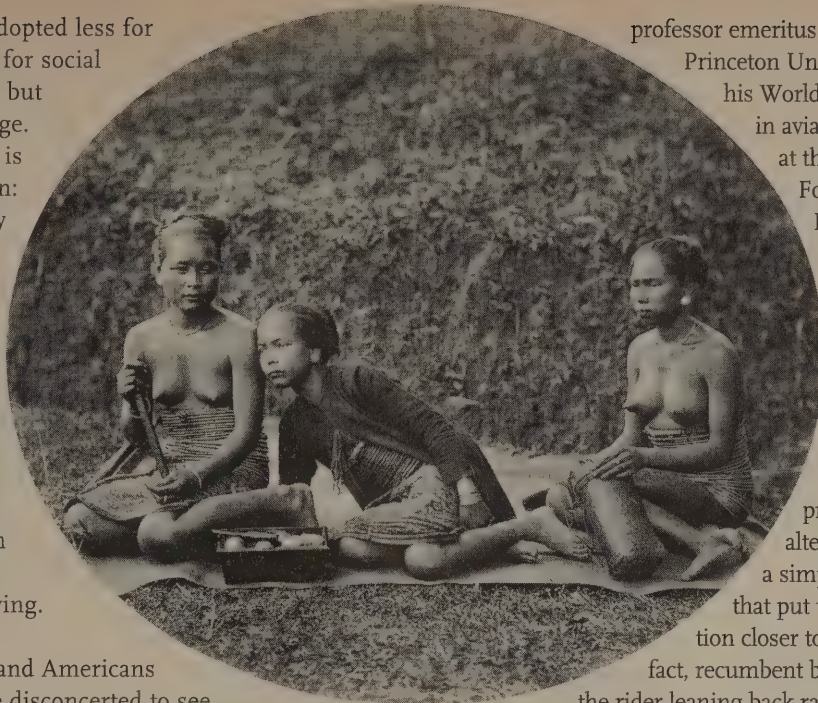
professor emeritus of biology at Princeton University, recalls his World War II days in aviation research at the Army Air Force's Wright Field, when pilots complained of intense pain after extended missions using conventional seats and praised the first alternative design, a simple cloth sling that put users in a position closer to reclining. In fact, recumbent bicycles, with the rider leaning back rather than

perched on a saddle, are potentially more efficient and generally speedier (and less hazardous to operate) than the "safety" frame that has prevailed for the last hundred years.

Chairs themselves are surprisingly hazardous. According to the U.S. Consumer Product Safety Commission, 410,000 injuries serious enough to disable someone for at least a day occur every year in connection with chairs, sofas, and sofa beds, most as a result of falling. Another 400,000 injuries involve beds; the number would be far lower if we used floor-level bedding like the original Japanese futon. (Just as missionaries brought some of the first chairs to China, they later introduced Western beds to Japan.) John Pierson has written in the *Wall Street Journal* that sitting in chairs causes most of the lower-back pain that costs the American economy \$70 billion a year.

We don't often consider mat-level alternatives, partly because our upbringing hastens us in childhood from the positions that the very young find so natural. The French anthropologist Marcel Mauss considered the loss of childhood squatting "an absurdity and an inferiority of our races, civilizations, and societies." Depriving the child of this capacity is "a very stupid mistake. . . . All mankind, excepting only our societies, has so preserved it." In *Growth and Culture: A Photographic Study of Balinese Childhood* (1951), Margaret Mead and Frances Cooke MacGregor observe that Balinese children "retain the flexibility that is characteristically seen in the human fetus, moving with a fluidity that suggests suspension in amniotic fluid."

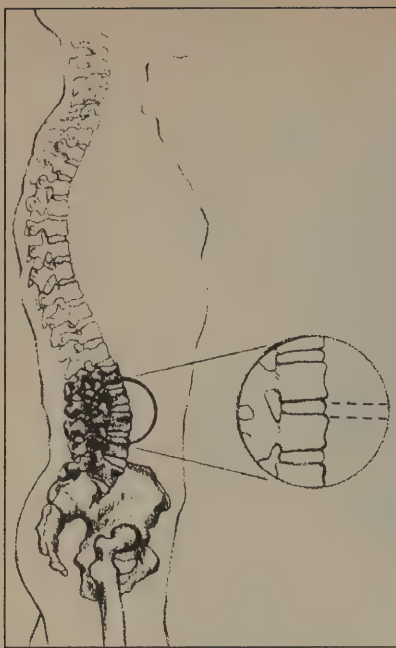
It is a challenge to reconstruct how part of



Women in Borneo (anonymous print).

Posture types from classification by Gordon Hewes (*Scientific American*, Feb., 1957).





Standing upright: the vertebrae are balanced in the natural "S-shaped" curve of the spine.

humanity began sitting in chairs while the rest (including some of the most culturally complex) lived near ground level.

Hierarchy can exist very close to the ground. In pre-Columbian Mexico, even Aztec rulers slept on the same kinds of mats as their subjects, and the same mats on low platforms were standard seating even in law courts and government offices. In fact, in pre-Columbian Mexico rulers were often called "He of the Mat."

In the absence of heavy furniture, the mat and the carpet have rich

symbolic worlds of their own. The Japanese tatami is a module still used as a basic measurement of space. Among Japanese artisans, "mat learning" had the same connotations that "armchair knowledge" does in the West. The Chinese title translated as "chairman," —*chu hsi*, means literally "mat master."

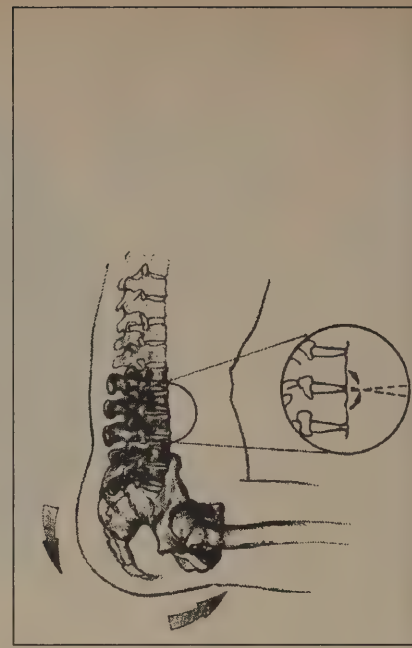
In the West, the chair diverted attention from the floor covering and helped determine every aspect of life and belief from the sublime to the material. Jewish and Roman sources both acknowledged chair sitting as central to kingship. Solomon's throne in 2 Chronicles 9:17-19 sets the pattern of a ruler elevated with legs suspending from the body and resting on a small stool; Greeks and Romans represented their deities on the high-backed *thronos*. The Holy See, the bishop's *cathedra*, and other chairs of state also followed this pattern. In the European High Middle Ages, high-status men and women worked the finest gradations of power and prestige in the public arrangement of their chairs. The physical occupation of a seat of office not only stood for office, it constituted office, and in one twelfth-century succession dispute in the Holy Roman Empire, three ranking bishops physically removed Henry IV from his throne and thereby deposed him. (This mentality does not require a Western-style throne. Even in the twentieth century,

one Indian prince recalled for the anthropologist Adrian C. Mayer: "So long as I ascend the *gaddi* [a cushionlike throne for cross-legged sitting] I am ruler, otherwise I am not. I am just nobody.") Even today, cartoonists depict Saint Peter in a heavenly chair, not sprawled on a cloud.

For men and women of all stations, sitting Western-style affects more than the spine. While the water closet as we know it dates only from the nineteenth century, the contrast between the Western seated position for defecation and the Asian and African squatting posture has long been familiar to travelers. In this century, Western physicians and designers have subjected the commode to the same scrutiny as the office chair, and most agree that it promotes straining and constipation. (Along with diet, squatting seems to have kept the common Western inflammation of the bowel, diverticulitis, out of Africa.) The architect Alexander Kira's definitive 1976 monograph, "The Bathroom," cites overwhelming medical opinion against the throne-toilet as we know it; yet so accustomed are we to the sedentary life that no significant market has ever developed for redesigned fixtures.

With so little to recommend them, chairs and related objects — raised beds, desks, worktables, commodes — nevertheless dominate the world. And at first glance this is not surprising. Were not chairs part of the baggage of empire, instruments of hegemony? And sometimes the symbolism of sitting positions is apparent. Press photographs of Ayatollah Khomeini and his circle always showed them seated at carpet level in robes and turbans, in contrast to the Westernized shah and his officials — a contrast that must have been powerful to Iran's traditionalists.

But there is far more to the adoption of chairs than conquest or modernization. Fitzgerald believes that Greek- or Syrian-born Nestorian missionaries brought chair sitting from Constantinople to China, but there was another source closer to home: the peoples of the north, some of whose rulers surprised Han Chinese diplomats by holding formal audiences while sitting on chairs with their legs hanging down. This

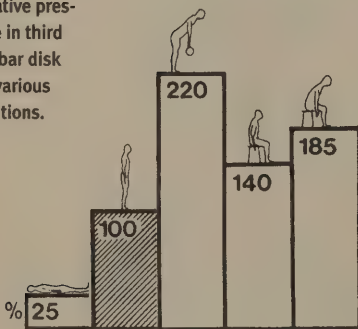


Sitting: the pelvis rotates backward, flattening the lower spine. Muscles and ligaments must work harder. The flattening also tends to cause the vertebrae to pinch the front of the disks.

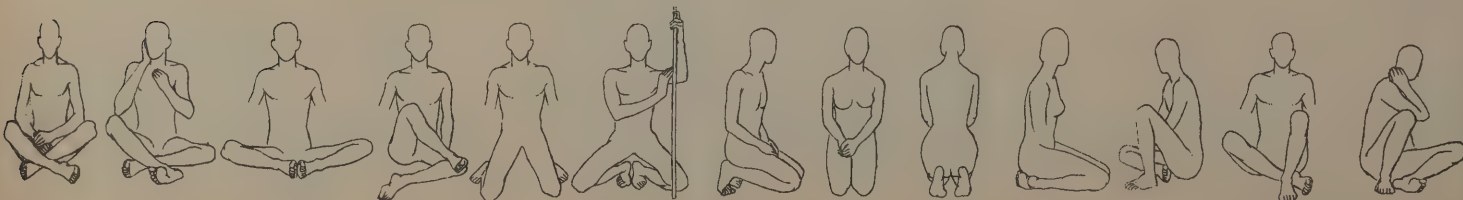
—From "Dynamic and Task Seating," by Paul Cornell, ©Steelcase, Inc. Used with permission.

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Relative pressure in third lumbar disk for various positions.



tions of power and prestige in the public arrangement of their chairs. The physical occupation of a seat of office not only stood for office, it constituted office, and in one twelfth-century succession dispute in the Holy Roman Empire, three ranking bishops physically removed Henry IV from his throne and thereby deposed him. (This mentality does not require a Western-style throne. Even in the twentieth century,



practice also is seen in the imagery of one of the five Living Buddhas, the Maitreya, whose cult was popular in the north. Why was this sitting position popular there? It may have reflected the influence of northern peoples who spent much of their time on horseback and found it more natural than cross-legged positions. The Chinese characters for "chair" in any case attests to its foreign origin: "barbarian bed."



The Chinese appear to have modified a raised platform or *k'ang* (a wooden adaptation of an oven-platform popular in the cold winters of the north), adding a back and shortening the seat. But the precise process is less important than the result: a cultural revolution of sorts in which clothing and furnishings were modified for men and women whose bodies were now several feet higher off the ground. Chinese joiners over the centuries created some of the most beautiful and comfortable chairs on earth, and even introduced the S-curved splat, the earliest antecedent of today's domestic designs.

If China shows how powerful historical accident can be in the diffusion of a concept as basic as the chair, Japan illustrates how mat-level ways can persist. There may be no better answer than contingent events at crucial junctures.

It was European conquest, diplomacy, trade, and warfare beginning in the sixteenth century that finally secured the worldwide dominance of the chair, at least among most elites. We have seen that chair sitting is not inherently more comfortable to those who have grown up with one of the dozens of other resting positions that the anthropologist Gordon Hewes docu-

mented in a masterly article more than forty years ago. Those who tried it in middle age often reported intense discomfort, he noted. The most influential channel of change may have been the Western-style schoolroom, which accustoms children to chairs in their formative years.

Consciously or not, Europeans began to maneuver non-Westerners into the chair as a precondition of bringing them to the bargaining table. The universal privileging of elevation probably guaranteed that the higher seating technology would prevail. European lore told the story of an African queen whose courtier bent over to make a living chair of his own back when her European hosts tried to humiliate her by not offering one. More likely, the West offered its furniture as instruments of co-optation or coercion.

Aztec manuscripts of the Spanish conquest of Mexico depict Cortes and Montezuma sitting in massive chairs that the former had brought — obviously as valuable political instruments — to their initial meeting. Even after the destruction of temples and palaces, the Christianized Aztec nobles integrated into the Spanish order, adopting the huge, Spanish-style chairs. The Aztec nobility



thus became the first of the non-Western elites to change its seating posture as a result of European expansion. But this was a cultural and not a functional change; bureaucracy as such can work perfectly well in mat-level societies without chairs or tables.

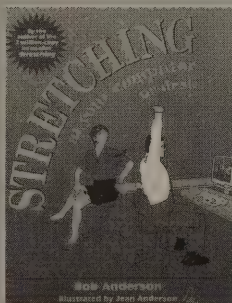
Whereas the chair remained a practical item of furniture for the Chinese, it entered Africa with a different aura. It was a kind of superstool. Africans had long made backrests for ground-level use, and some kings had already used seats and backrests together.

When Europeans arrived with furniture that integrated seat and back — and the first of these came with the Portuguese in 1481 — these well-chosen gifts soon won the admiration of elites. African rulers received them

Stretching at Your Computer or Desk

Bob Anderson, Illustrated by Jean Anderson, 1997; 101 pp. \$9.95, Shelter Publications, Inc.

Do-it-yourself torture: Place subject on a chair, to compress vertebrae, contract muscles, and cut blood circulation. Immobilize for hours. Eliminate diverse motions required by old office machines (hitting the carriage return, inserting paper, changing ribbons). Place files literally at the subject's fingertips, to decrease taking walks or squatting to fetch a folder. Substitute email keystrokes for manipulating pieces of paper. Create a monoculture of minimized motions, repeated endlessly



(over 20,000 keystrokes per work period). Demand focus to heighten mental and muscle tension.

It doesn't help much to remember that we're doing this to ourselves, as I recognized two months ago when back spasms left me crawling to the bathroom. Stretching won't cure serious problems after they've occurred. But it can be a simple, powerful, preventative along with attention to ergonomics and remembering to get up and move regularly.

Bob Anderson keys his program to computer-created breaks: e.g., stretching while the computer warms up, while downloading data or printing, or while the modem dials. —MKS



not as alien impositions but as potent elaborations of their own ways. While there had been indigenous high-backed seats in some regions, artisans now developed the European idea with complex narrative and cosmological decorative programs. Some of these magnificent objects in turn made their way to European collectors and museums. What would the original chair makers have thought

had they been informed that, in 1921, a Bauhaus student named Marcel Breuer (later celebrated for the tubular-steel sled-base Cesca chair) would in turn appropriate their work, now considered naive, as inspiration for a five-legged "African" chair? It is as though world culture had become not an array of vitrines but a house of mirrors.

In the rest of the modernizing world, chairs spread with less aesthetic panache. Once the local upper classes began to entertain with Western furnishings, social emulation began a process — later accelerated by the customs of the office, the railroad car, the airplane seat, and the automobile — that did the rest. Of course, chairs are not used universally and almost certainly never will be. Many people still cannot afford even simple ones; others, especially peasants, may simply prefer ground-level ways. Richard Eaton, a historian who visits India often, reports that while offices, schools, and factories in the South have chair seating, homes generally do not—another argument against technological determinism.

Still, there are signs that the world's commitment to the chair may be difficult to arrest, let alone reverse. In Japan, where many households have maintained both tatami and Western rooms, younger people are finding it increasingly difficult to maintain traditional ground-level seating positions. The less time is spent in them, especially in the kneeling meditation posture of seiza, the less comfortable they become. Worldwide lumber scarcity has discouraged traditional Japanese building methods, and many families now choose American materials and plans inspired by the sets of Hollywood films. Meanwhile, children as young as two and three sit on tiny chairs at cram-school desks preparing for the kindergarten entrance examinations.

It is not clear whether (as some Japanese and foreign officials have claimed) the decline of kneeling has supplemented diet in increasing the stature of Japanese youth, or whether different proportions have contributed to the preference for chairs. Sitting habits affect tendons, ligaments, and joints in ways that medical research has hardly studied; prolonged kneeling can induce bursitis, and extended cross-legged sitting by Western novices may damage knee joints permanently. In our posture, cultural choices become

biological facts. It is not clothing but seating that truly makes men and women. Even mature Japanese executives now routinely use cushions with short backs in traditional restaurants to ease their discomfort. Most new toilets are of the Western sitting type.

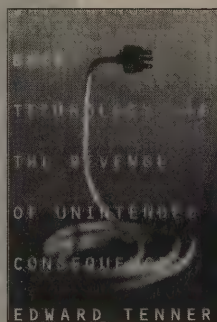
Meanwhile Europeans and Americans continue to experiment fitfully with mat-level life. Shag carpets, conversation pits, beanbag chairs, and brightly patterned floor cushions are all period pieces, but the impulse is not dead. And behind it is not so much a quest for health or even novelty as the sense that the chair as a technology has raised us a bit too much from nature, from our nature. In the end, the chair may not be a matter of health or performance or power, but of values. The scholar of Zen, D. T. Suzuki, contrasted Rodin's chair-height *Thinker* with Sekkaku's Zen master in meditation: "To raise oneself from the ground even by one foot means a detachment, a separation, an abstraction, a going away in the realm of analysis and discrimination. The Oriental way of sitting is to strike the roots down to the center of earth and to be conscious of the Great Source whence we have our 'whence' and 'whither.'" Has humanity lost something in attitude as it has gained in altitude? ⊕

Why Things Bite Back

(Technology and the Revenge of Unintended Consequences)

Edward Tenner. Alfred A. Knopf, Inc., 1996; 346 pp. \$26.

All technologies have a good side and a dark side. The dark side is often difficult to predict by narrowly focused experts: adding a lane to the freeway ultimately adds to congestion; air conditioners make cities hotter; hospitalization makes many patients sicker. Such unintended results are dubbed "revenge effects" in this unsettling book. The wide range of examples is presented in a way that encourages you to think in ways that will help to reduce future problems. Tenner calls for disciplined vigilance and inspections along with more comprehensively considered design. —J. Baldwin



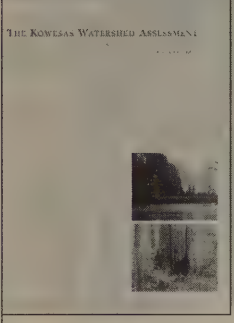
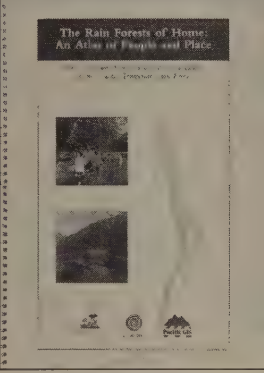
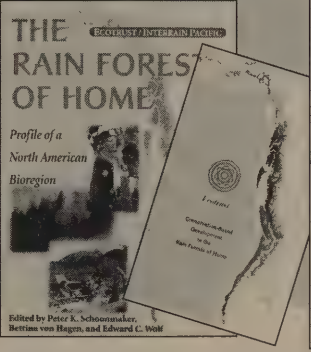
“The greatest risk of any new technology, especially a genetic one, is not a superpest. It is an apparently harmless organism or chemical that begins as a stunning success and displaces alternatives in the marketplace. Making anything so hardy and productive is like announcing a huge prize for the first naturally selected pests and parasites. Sooner or later, there will be a big winner.

The North American Rainforest

The Rain Forests of Home
(Profile of a North American Bioregion)
Peter K. Schoonmaker, Bettina von Hagen & Edward C. Wolf. Ecotrust/Interrain Pacific, 1996; 431 pp. \$27 (\$31.75 postpaid). Island Press, Box 7, Covelo, CA 95428; 800/828-1302.

Conservation-Based Development in the Rain Forests of Home (video)
Ian Gill. 1996. Ecotrust, 1200 Northwest Front Ave. #470, Portland, OR 97209; 503/227-6225, info@ecotrust.org.

The Rainforests of Home
(An Atlas of People and Place)
Erin L. Kellogg, Editor. 1995; 24 pp. \$30 postpaid. Ecotrust, Pacific GIS, and Conservation International.



The Kowesas Watershed Assessment
(Summary Report)
Peter K. Schoonmaker & Edward C. Wolf, Editors. 1996; 51 pp. \$15 postpaid. Interrain Pacific/Ecotrust; 503/226-8108.

There are those who love ideas and ideals, and those who cherish the sensuous texture and unique patterns of mud and mental moil; meander and muddleheadedness; salt and sensibility. The latter are locally entrenched, testing and exercising their ideals with the muscle or madness of bioregional community.

The temperate rainforests of North America and Chile nurture an exceptional crew of these maverick scientists, citizen activists, bureaucrat rebels, re-hoped indigenes, and meditating laborers: those who know how to rehabilitate watersheds, make a living, and feel good.

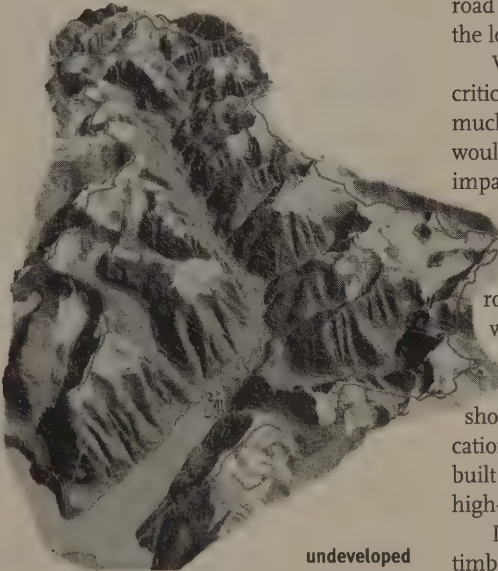
Each of these resources teaches both the information and the practical approaches to bioregional intimacy. The **Atlas** instructs on people, place, and mapping. The **Profile** provides the more academic and thorough knowledge base which will influence long-term commitments. The video lays it all out in everyday language.
—PW

“Forty-four of 68 language groups believed to have been spoken at the time of European exploration are today extinct or spoken by fewer than ten individuals. The losses have been heaviest in the southern part of the coastal temperate rain forest region. . . . The pattern of language extinction follows a path from south to north reflecting the time and intensity of European settlement. Overall, the numbers of fluent speakers of native languages in the region have declined by more than 99 percent, and all the languages along the Northwest Coast are in essence endangered since all or nearly all of their surviving speakers are elderly. —ATLAS

“Only eleven of 146 watersheds larger than 100,000 hectares remain intact. Five are in Alaska: one on the Kenai Peninsula (the coastal temperate rain forest area is undeveloped, although the lower watershed has been settled), one in Prince William Sound, two in the Copper River Delta, and one on Icy Bay. These Alaska watersheds are somewhat anomolous, as much of the area is rock and ice, with a narrow strip of rain forest along the coast. —ATLAS

“At the local elementary school, before the salmon restoration project began, students painted a mural that showed fish swimming every which way in the river; the only human stood on the bank, fishing. When the hatchbox

program was a few years old, another group of students painted a new mural. This time the big fish were all swimming upstream to spawn, and the people in the picture were releasing fingerlings to swim down to the ocean. From such experiences and realizations we are attempting to forge a new way of relating to the watershed we live in. —PROFILE



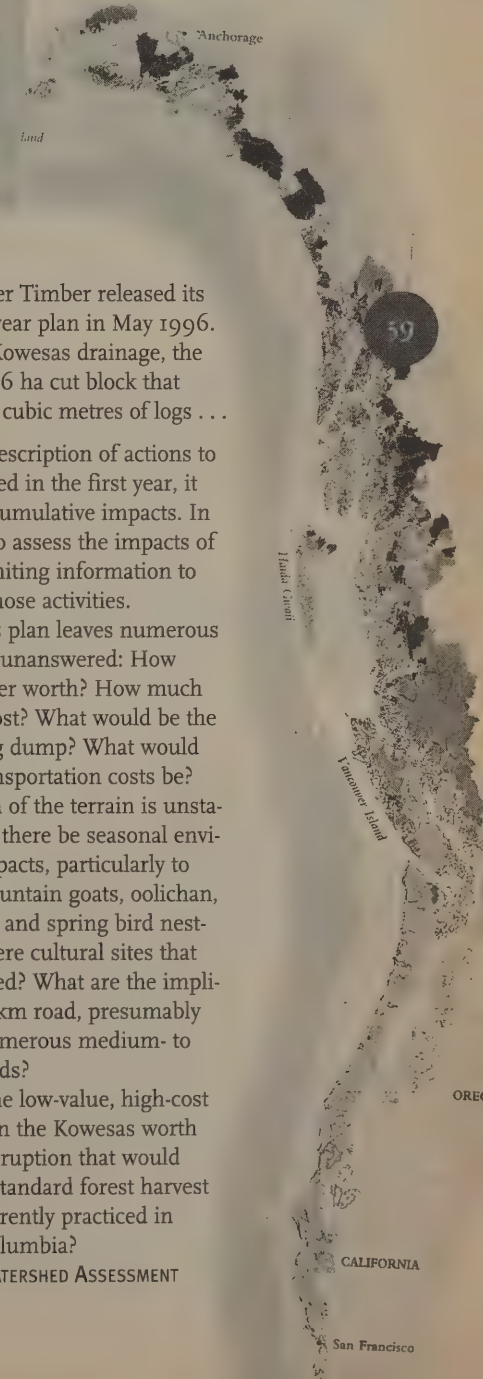
The Kowesas Watershed, just south of the Gardner Canal (at left, above) is one of five undeveloped primary watersheds in British Columbia's coastal temperate rain forests.

“West Fraser Timber released its most recent five-year plan in May 1996. In regard to the Kowesas drainage, the plan proposes a 26 ha cut block that would yield 7000 cubic metres of logs . . .

By limiting description of actions to those contemplated in the first year, it masks potential cumulative impacts. In addition, it fails to assess the impacts of road building, limiting information to the locations of those activities.

West Fraser's plan leaves numerous critical questions unanswered: How much is the timber worth? How much would the road cost? What would be the impacts of the log dump? What would the total transportation costs be? How much of the terrain is unstable? Would there be seasonal environmental impacts, particularly to wintering mountain goats, oolichan, salmonids, and spring bird nesting? Are there cultural sites that should be avoided? What are the implications of the 10 km road, presumably built to access numerous medium- to high-volume stands?

In short, is the low-value, high-cost timber available in the Kowesas worth the ecosystem disruption that would ensue following standard forest harvest techniques as currently practiced in coastal British Columbia?
—THE KOWESAS WATERSHED ASSESSMENT



Ka'u Landing

Michael Gibson, Editor. \$27/year (12 issues). Ka'u Landing, P.O. Box 7179, Ocean View, HI 96737; 808/928-6449, fax 808/939-8107.

Every thirtieth blue moon, a bioregional newsprint mag erupts with humor, intelligence, local loyalties, and in-your-face honesty. Last time, years ago, the *Texas*

Monthly was the wildcatter.

Ka'u Landing is the magazine for the island of Hawaii. The issue I found had articles on "smart bananas" and Hawaii's market maneuvering to reduce imports; rock n' roll reporting on county politics; how a new macadamia nutcracker may revolutionize the business; announcements of Kona forest land use changes; indigenous Pacific nations' celebratory reunion; as well

as your local mag regulars (events, crosswords, astrology). Even the ads wanted to be read (bamboo nurseries, thatch roofing, coconut timber, oh'i'a-ai, eco-tourism). A model mag for embedded living. —PW (Suggested by Richard Hanson.)

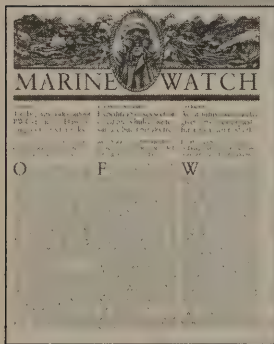


Marine Watch

John Grissim, Editor. \$30/year (4 issues). Marine Watch, P.O. Box 810, Point Reyes Station, CA 94956; fax 415/663-8784, www.marwatch.com.

Here's a brisk splash of ocean-related news from around the world. Edited and published by life-long sea-lover John Grissim, **Marine Watch's** vital, vigorous, thoughtful, and fun upwellings give fresh meaning to oceanography. A recent issue was filled with current news of such diverse topics as treasure salvage, suicidal walruses, surfing in 35-foot waves, great white shark captures,

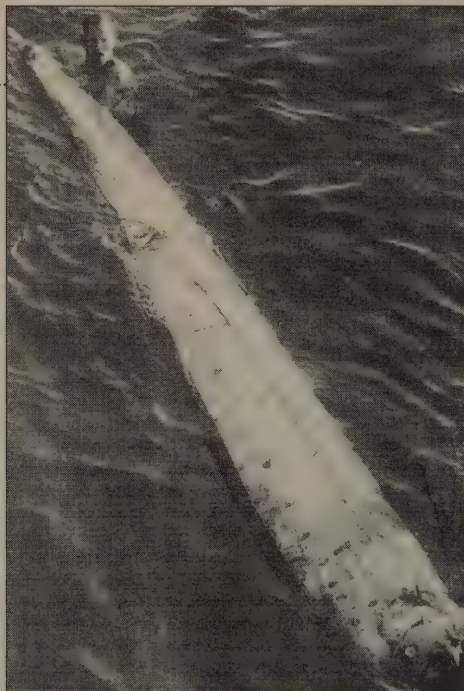
and 5,000-year-old evidence of the origins of the El Niño Pacific weather system. The graphics are clear and pertinent. **Marine Watch** stays glued to its motto: "We can never learn enough about the ocean." I'm always really glad to find it in my mailbox. —Hacs Horvath



"Shachtman and the others grabbed cameras and approached in a skiff. "Greg was holding the fish just behind the head and we could see it was bleeding quite a

" Worldwide, demand for bananas continues to climb. In Asia, Eastern Europe and post-Cold War Germany, new demand for bananas pushed up prices from 1987 to 1991. To meet that demand, and anticipating a lowering of trade barriers with Spain, England and France, producers stepped up production. Chiquita Brands International, controlled by corporate raider Carl Lindner, spent \$800 million in two years buying ships and upgrading processing plants. All this banana frenzy set the stage for an international trade war in 1993. The effects of that experience still reverberate among Hawai'i banana farmers who, by the way, comprise the entire U.S. banana industry.

When industry giant Chiquita dumped dirt-cheap bananas on the Hawai'i market in 1994, Senator Daniel Inouye warned, "at this rate, Hawai'i's small growers will soon find themselves out of business." That threat has since subsided. But it's worth revisiting to appreciate the vulnerability of local farmers in an international commodity business rife with trade barriers and cut-throat politics.



bit out of the gills and that it wouldn't be with us much longer. He knew right away what it was, telling us it was an oarfish, a deep pelagic fish and extremely rare. . . ."

The great fish was indeed an oarfish, *Regalecus glesne*, a species so-named because of the long, oar-shaped fins that protrude from either side of their bellies. . . . Despite their size, they have small mouths and no teeth, and spend their

" "I call it the F-15 'Mac-attack,'" Bill smiles. "It is a high-tech piece of equipment built of titanium and exotic metals and fiber optics. Our original model, begun three years ago was based on analogue wiring, while the second machine now being finished is the production model, totally digital and computer-controlled. Essentially what we are doing is applying robotics to the macnut cracking business."

The F-15 cracker has a top speed of ten nuts per second, though it is currently being run at about seven nuts per second since Whaling and helpers cannot feed in and carry away nuts fast enough. The programmable mechanics generate a velocity of 350 mph while the uncracked nut is literally "shot" into the cracking chamber. The resulting vibration/oscillation of the nut effectively blows the shell apart, leaving a perfect, shiny macadamia nut kernel.

"There is very little sorting," Whaling noted. "We are getting 90% whole nuts. That is a near 60% improvement on the present cracking systems, and we do about four nuts per second faster than the crusher-crackers. They were designed about 1954. The technology is outdated. This cracker will revolutionize the industry."

Wild Guess II stern for
captain Greg towing to La
Willis moves Paz where it
the body of was turned
the oarfish to over to
the vessel's scientists.

lives at great ocean depths (1,800 feet to 3,000 feet), moving snake-like through the darkness feeding upon tiny creature such as krill, sea jellies and other plankton-sized protein.

Over the centuries a few dozen specimens have washed ashore around the world, usually badly decomposed. The largest of these was 56 feet, found in 1808 on a beach in Scotland. Yet very little is known about the fish, or even why the Sea of Cortez specimen came

up from the depths to throw itself upon the rocks of an emerald cove. But for Shachtman and the others who witnessed this singular event, the reason was clear — it had come to die. . . .

The carcass of the oarfish was towed to La Paz and measured at 18 1/2 feet with a 50-inch girth, and an estimated weight of 500 lbs. It was turned over to scientists from the U. of Baja California Sur for study.

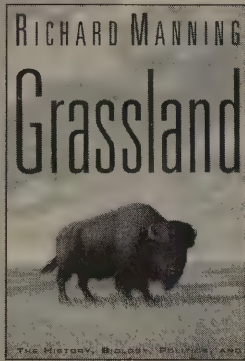
Grassland
(The History, Biology, Politics, and Promise of the American Prairie)

Richard Manning. Viking, 1995; 306 pp. \$23.95.

In his fit rendering of the life of the prairie biome, Richard Manning articulates the many dimensions of the American prairie: evolutionary, theological, geological, paleontological, botanical, cultural, historical, literary, agronomic, and economic. He stays accurate, keeps the big picture always in view, and steadily details it with salient stories.

Questing deep as prairie plants, *Grassland* speaks of Thomas Jefferson's vast influence on the disposition of the land and the aboriginal peoples; of the etymology of cowboy lingo; of the USDA plant collector who touted the Eurasian grass that is now an alien plague on the plains; and of the bison-ranching program at Ted Turner's 200-square-mile Flying D.

We may yet plunder and reduce our bioregions and biomes, but we'll never, no matter what the technofix, evade the reality that fate and place are as one. Richard Manning's got that understanding right to the bone. —Stephanie Mills



reliable estimate. Now a century and a half later, elk, bison, antelope, and deer have been reduced to about one percent of their original numbers in the West, replaced with cows — specifically, 45.5 million head of cattle in the ten states that were the main area of the original bison range, according to the 1987 Census of Agriculture. A cow produces about as much meat as a bison, but it is fatter meat, much higher in cholesterol. Many who eat both prefer the taste of bison. A century's worth of work, warfare, and technology replace 50 million bison with 45.5 million cattle. One wonders what progress is for.

“In a naturalist's terms, the animal rights argument evaporates the quickest. The concept of right is a concept of law derived from civilization. Nature confers no rights, not even to humans. Rights are something we confer on one another as an expedient, the social contract. We, however, make our largest errors when we believe we are not a part but the whole of nature. Nature keeps order not with laws, justice, and rights, but with predator, prey, fire, and wind. Nature does not have to be fair. We were not there when nature laid the earth's foundations. Our every attempt to replace them with our own

Tipis and Yurts
(Authentic Designs for Circular Shelters)

Blue Evening Star. Lark Books, 1995; 128 pp. \$24.95.

For several wonderful seasons, I lived in a tipi. I have had the experience of watching a raindrop run slowly and with purpose down that long tipi pole until it came to a splinter, gathered itself, and leapt airborne to land upon the chimney of an Aladdin lamp — tink.

Illumination change. Blue Evening Star has got the spirit for round shelter living. I can feel the warmth, admiration, and respect she has for this type of home. The chapters on materials, cutting, and sewing are excellent, as well as those on pitching of the wood and

Great Old Broads for Wilderness

Membership \$25/year, includes t-shirt & quarterly newsletter. 1942 Broadway, Suite 206, Boulder, CO 80302; 303/443-7024, fax 303/442-6622.

“When I grow up I want to be an old woman,” I sing along with Michelle Shocked. Now I add that I want to be an Old Broad, a Great one, for Wilderness, thanks to the inspiration of this band of crones (though any age or sex can be one). Maybe I'll say, when I am 60 or 70 or 80, that I helped drain Lake Powell, an issue the GOBs may adopt at their conference this October. Appreciation for existence and endurance — that's what these activists have for the land they explore on their annual Broadwalk. Determination and joy come through in their quarterly newsletter, *Broadsides*. A Great Old Broad shares her wisdom and exerts her influence, demonstrating humor and passion while exercising her voice and her voting power. It's not about getting to the top, it's about getting broad. —ET



Time and trouble will tame an advanced young woman, but an advanced old woman is uncontrollable by any earthly force.

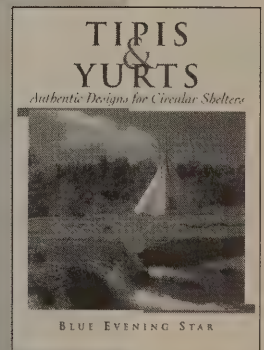
—Dorothy L. Sayers

foundations has backfired, and nothing is better testimony to that than the face of the grassland in the West.

canvas to its form. Just remember that the author is from a mountain desert climate, not a coastal one. Coast Indians didn't live in tipis or yurts. They made homes of planks pried from sometimes living deep forest, and tried to stay well drained from the rains.

An average Sam and Sal with a little wanna and nerve can follow these instructions toward success. You desire to make a circular shelter from fabric? Use this book. It's a good one, with fine quality historical and contemporary paintings, photos, poems, and stories too.

Say hey, Rita. Let us get together, bend these pages, dust off the Singer, and we can make ourselves a minimal home that suits us. There will be room for the dog, and we can pack it to the sheep camp of our dreams in the VW bus. A round house, no corners for ghosts, and a door to this planet's world that always faces sunrise. —Daniel Chadima



Far left: No matter what changes modern life has brought to the Mongols, many still prefer to live in their yurts.



Bioregional Disasters

J. Baldwin

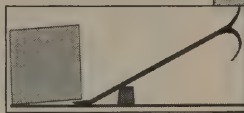
Earthquake Supply Center

509 B East Francisco Blvd., San Rafael, CA 94901; 800/RATTLE-1, fax 415/459-5589.

You can't possibly stock everything you might need, but this catalog will give you some ideas.

“PREPAREDNESS ITEMS FOR UNDER THE BED:

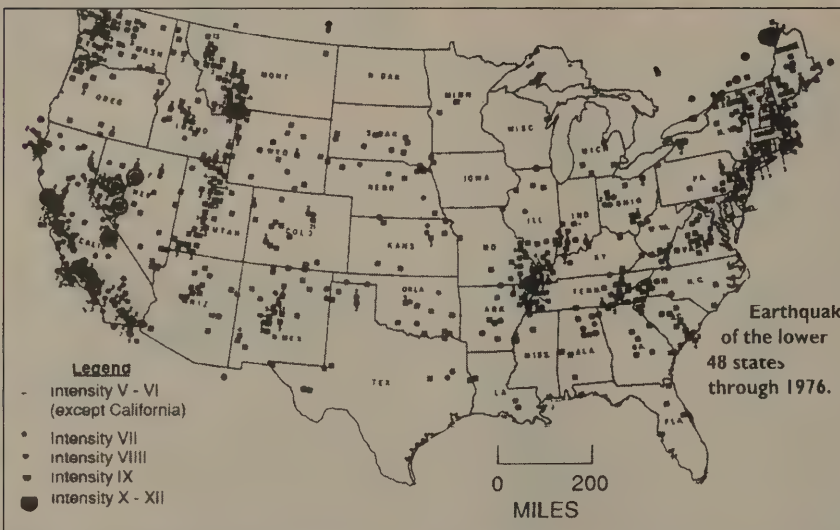
1. *Crowbar* — To open jammed doors or remove broken glass to escape, or use as a lever to move fallen items.



2. *Spare Shoes* — Don't jump out of bed barefoot! The most common injury in any disaster is cut feet. Have a pair of shoes in a plastic bag next to your bed. Broken glass and debris may be present on the bathroom floor.

3. *Light* — Flashlight with working batteries and light sticks. Secure to the bed. Use light sticks if the smell of gas is present, use of flashlight can cause an explosion.

4. *Work Gloves* — To protect hands from glass and debris.

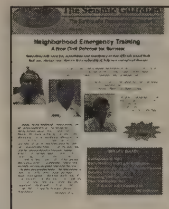


The Seismic Guardian

\$15/year (four issues). PO Box 5659, Berkeley, CA 94705; 510/273-9818; www.seismic-guardian.com.

When the Big One comes — which it certainly will — the fire department and ambulance service will probably not be

able to help you. You're it. Folks with real experience are the writers/advisors in this essential new periodical published by Jack Batsel. Unlike dull manuals written in a way most likely to withstand litigation, this quarterly



brings you the practical know-how based on actual experience. Not just for Californians, either: Remember that the worst quake in US history happened near St. Louis.

“In general, businesses do not fare well in quakes — many businesses are history before the shaking stops. Others never recover from the variety of unforeseen circumstances that arise in the months following a quake.

There are a variety of publications that cover the most basic elements of your plan. Everyone should start by ordering and reading a copy of either of the following:

In Less Than One Minute: Spend a few minutes preparing for a few seconds that could put you out of business (California Seismic Safety Commission; 1900 K Street, Suite 100, Sacramento, CA 95814-4186).

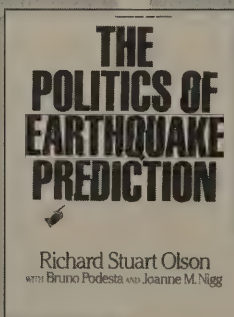
Earthquake Preparedness: A key to small business survival (Bay Area Regional Earthquake Preparedness Project; 101 8th Street, Suite 152, Oakland, CA 94607).

The Politics of Earthquake Prediction

Richard S. Olson, Bruno Podesta & Joanne M. Nigg. Princeton University Press, 1989; 187 pp. \$25.

In 1981, two US government scientists predicted firm dates for major earthquakes near densely populated Lima, Peru. No quakes occurred, but things got shook up anyway. Should the Peruvians have ignored the scientists? Should the scientists have kept quiet? What if the quake had happened as predicted? How would you have handled

the situation? This easily read book reports what actually happened after the day the earth stood still. The discouraging stew of politics, bureaucratic turf battles, morality questions, scientist-fu, media hype, economic disaster, and egocide is a useful lesson in what happens when decisions are made without a systematic consideration of the whole.



“I had no idea of the level of anxiety and concern these predictions had caused in Lima. During my stay, every newspaper contained at least one front page

story about Brady; property values have fallen drastically in Lima; many who could afford it left town for the weekend, and the people at the hotel where I stayed said their bookings were down to about one-third normal.

“In the case of the Brady-Spence prediction, the media saw news value in the controversy and became a kind of “science court” itself. Then, as we shall shortly see, the media put the real science court, NEPEC, under a microscope. Obviously, there is no easy solution to the problem encountered by traditionally slow-paced, self-correcting science when it falls into the electronically swift environment of today.

Document Recovery Information Packet

1997; 13 pp. Free. California State Archives Division, 1020 O Street, Sacramento, CA 95814; 916/653-7715.

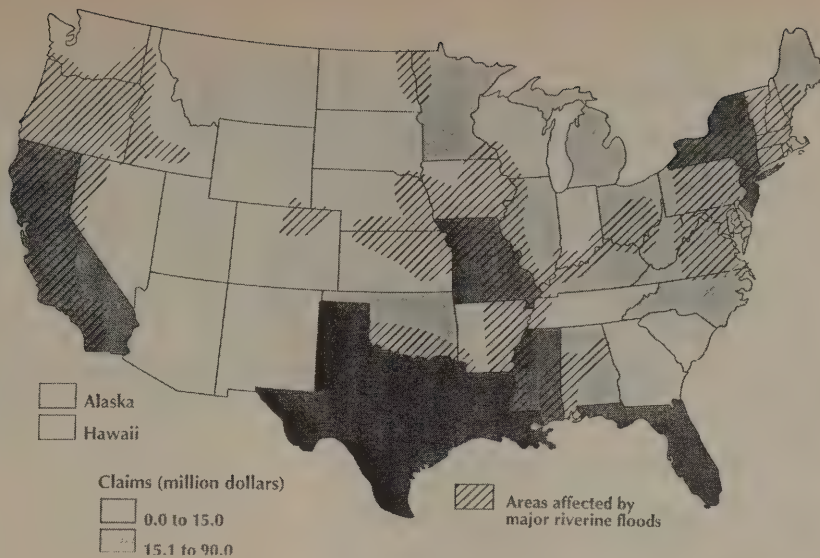
When the floodwaters subside, the dispiriting work of salvage and recovery begins. Insurance may pay for new furniture, but what about one-of-a-kind photographs, books, or family heirlooms? The California State Archives compiled this packet after devastating flooding in the Central Valley this year. Using materials from the American Institute for Conservation of Historic and Artistic Works, the packet offers basic advice on protecting artifacts, preventing further damage, and drying (or, sometimes, freezing) materials. Don't wait until the next flood to get this information; the first 48 hours can be crucial to saving your treasures. —MKS

“ Salvage without delay these historic photographs: Wet collodion photographs (ambrotypes, tintypes, pannotypes and wet collodion glass negatives): Salvage first and air dry immediately. Both immersion and freezing will destroy the emulsion.

Daguerreotypes: Salvage and air dry. Nitrates with softening emulsions: Freeze immediately and make arrangements to freeze dry. Emulsions are water soluble and could be lost.

Other photographs should be kept wet in containers of fresh cold water until they are either air dried or frozen. If allowed to partially dry, they will stick together. Pack inside plastic garbage pails or garbage bags inside boxes. Keep to a minimum the immersion time to treatment or freezing.

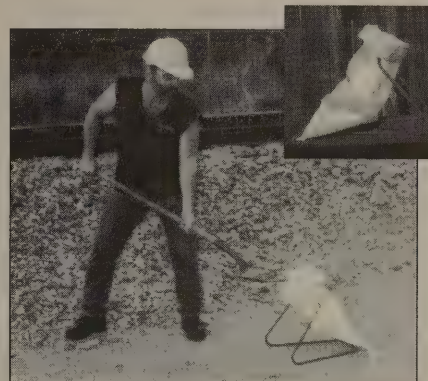
“ Don't open or close wet books or remove wet book covers. If the water is dirty, wash the books before freezing.



Do not wash open books and those with water soluble media. Wash closed books in tubs of cold running water and dab away (do not rub) mud with a sponge. Time and facilities may limit this treatment.

Lay a sheet of freezer paper around the cover, and pack spine down in a milk crate or cardboard carton.

Leather, parchment and velum binding are an immediate priority because they distort and disintegrate in water. Books with coated papers should be kept wet by packing inside boxes lined with garbage bags, then frozen.



Sandbagger

\$24.95 from Bear West, 10929 Firestone Blvd., Cave 124, Norwalk, CA 90650; 562/863-9474.

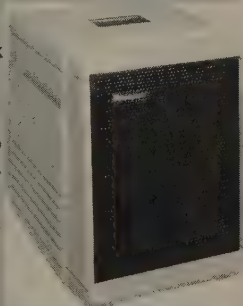
Desperate filling of sandbags — ant work at its worst — is even more purgatorial if there's nobody to hold the floppy-assed bag open for you: Shoveling while wrestling the

recalcitrant sack doubles your labor and halves your output. Ironically, if there is somebody to hold the bag open for you, the work still goes half as fast as it could if the hold-opener was filling bags instead of holding them open for you, if you follow me. This **Sandbagger** thingamajig tirelessly performs the bag-holding task. Simple, effective, and sturdy, a bunch of them can make a dike grow twice as fast with the same effort.

Friedrich Portable Air Cleaner

\$489. Friedrich Air Conditioning Co., 4200 N. Pan Am Expressway, P.O. Box 1540, San Antonio, TX 78295-1540; 210/225-2000, fax 210/228-1709.

What my grandmother referred to as “nocturnal noxious effluvia” gets me as it got her — eyes-glued-shut, wheezy unpleasantness at wake-up time. Taking allergy nostrums every night seems dangerous. Solution: An air cleaner. A bit of homework revealed the Friedrich as high-priced, but best. In rooms up to 400 square feet it eats virtually all pollen, bacteria, dust, dust mite frass, animal dander,



mold spores, and even some viruses. An affordably replaceable carbon after-filter absorbs cigarette smoke and cooking odors. In contrast to its less-effective, energy-hungry competition, it never needs expensive primary filter replacement, but cleaning its electrostatic innards once a month is annoying, though easy to do. Cruising quietly and efficiently at 47 watts, it has worked well for us. Skeptics can try one free (for freight costs) for thirty days.

BayGen Freeplay Radio

\$109. Real Goods, 555 Leslie St., Ukiah, CA 95482-5576; 800/762-7325, 707/468-9214, fax 707/468-9486.

Designed in England by Trevor Baylis, and built in Africa, this crude-looking, wind-up radio is important in a way that

may not be obvious to us urbane techies: With it, the most remote village can receive local and world news, medical advice to prevent the spread of AIDS, storm warnings, and answers to agricultural problems. Yes, I said wind-up — a minute of cranking the spring generator will get you about 45 minutes of am, fm, or short-wave reception. No batteries are required — an important feature where they may not be available (and even where they are available, batteries are the most expensive source of electricity). On a trip to the boonies, it worked fine, though I would have made it more weather- and dust-proof.



The Ethics of Eating {Pt. II}

Alice Waters. Not long ago I was invited to give the commencement address at Mills College. When you give a graduation

speech, you have permission to be very solemn, and to cover the Big Themes, and to go right to the Heart of the Matter.

So I gave a speech in which I tried to answer the questions of what it means to be human

and what our lives are supposed to be for. And I titled this speech "The Ethics of Eating." I tried to persuade the class that the choices they make when they buy food are serious choices, and that the way they choose food matters.

But there is another ethical choice we make about food, and that is how we decide to eat it. So this speech is "The Ethics of Eating, Part Two." I want you to choose to eat gathered with other people around the table. I told the graduates about my lifelong connection with food, and how in many ways it grew out of my involvement with the politics of the sixties. When people choose mass-produced food and fast food they are supporting a network of supply and demand that destroys local communities and traditional ways of life all over the world — a system that replaces self-sufficiency with dependence.

It's not just the food, it's what we do with it. If we are going to eat ethically, we had better start eating with each other and our children. When you eat together, and eat a

meal you cooked yourselves, you are involved with the process in a different way. You shelled the peas, you peeled the potatoes, and you want everyone to enjoy every last bite. These are the kind of meals we should be eating with our children. To paraphrase Wendell Berry, such meals honor the materials from which they are made; they honor the art by which they are done; they honor the people who make them, and those who share them.



BEEBO THURMAN

When you eat together, and eat a meal you cooked yourselves, you are involved with the process in a different way. You shelled the peas, you peeled the potatoes, and you want everyone to enjoy every last bite.

I think we can all agree on this: no matter where we fall on the political spectrum, we need to take care of children. Way too many children are living in not just inhumane, but inhuman, conditions. And this is true not just of the kids who are being pressed into military service in vicious wars, and not just of the kids who are at the edge of starvation due to ecological mismanagement in developing countries, but of the kids in our own country. We have raised a generation of kids, far too many of whom have never participated in the growing of food or the preparation of meals, who have never sat down together at a table with other generations. They haven't learned the meaning of mutual responsibility, or experienced the caring and love that families can only express, I believe, by sharing nourishment.

Alice Waters was recently named Humanitarian of the Year by the James Beard Foundation for her work at the Edible Schoolyard. In addition to these efforts, she is involved with the Horticulture Project at the San Francisco

County Jail, and its related program, the Garden Project, a job training organization and market garden. For over two decades Alice has helped create a network of farmers and ranchers who now ensure her acclaimed

restaurant, Chez Panisse, a steady supply of pure and fresh ingredients. This essay comes from remarks made to the 16th Annual Ecological Farming Conference in Asilomar, CA, January 25, 1996.

Once, not so long ago, food preparation and food service were both the solemn duty and the reward of family living. Once families were food-producing and food-processing

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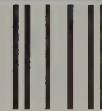
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We have always been about serving a community of interests. To that end, *Whole Earth* strives to maintain an intimate and direct dialog with all our readers. Our future depends upon furthering that close relationship. Below are a list of questions asking you for feedback and information about who you are. Please answer the questions and return to us. We welcome all other suggestions and ideas.

Return to:

Whole Earth, 1408 Mission Avenue, San Rafael, CA 94901

Fax: 415.256.2808

Email: wer@well.com

fold

1. How did you acquire this issue?

- Newstand
- Subscription
- Friend
- Other

2. How often have you read *Whole Earth* in the past?

- Every issue
- Occasionally
- I am a first timer

3. How much time do you spend with each issue?

- Over 3 hours
- 1 to 3 hours
- Less than 1 hour

5. To what extent do the book reviews influence your book reading decisions?

- not much
- somewhat
- a lot

6. Would you prefer:

- comprehensive resource listings
- a recommendation of the best resource
- both of the above

fold

4. What do you think of *Whole Earth's* presentation of the following topics and sections?

	<i>never read</i>	<i>satisfied with coverage</i>	<i>wish there was more</i>
Home tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Book reviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Long articles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People profiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resource listings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Music and Poetry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gossip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. What other publications do you read regularly?

- _____
- _____
- _____
- _____

8. Areas of interest:

	<i>not interested</i>	<i>interested</i>	<i>very interested</i>
Ecology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic media & computer technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economics & market systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign affairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human rights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family affairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spirituality and religion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education & schooling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outdoor recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How often do you use:

	<i>never</i>	<i>daily</i>	<i>weekly</i>	<i>monthly</i>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
World wide web	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Gender:

Male Female

11. Age:

20 & under
 21-30
 31-50
 41-50
 50+

12. Household Income:

Under \$25,000
 \$26-40,000
 \$41-60,000
 \$61-80,000
 \$81-100,000
 \$101-150,000
 \$151,000+

13. Education:

High school
 Attended college
 Bachelor's degree
 Attended graduate school
 Graduate degree

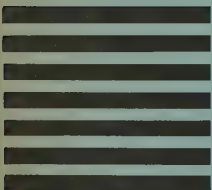


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units. And humanistic values were instilled, more than anywhere else, at the dinner table. Families eating together passed on values such as courtesy, kindness, generosity, thrift, respect, and reverence for the goodness of Nature — pretty much the whole Boy Scout package of virtues.

The ritual of coming to the dinner table was once the basis of community. Recently Francine du Plessix Gray wrote an essay in the *New Yorker* aptly titled “Starving Children,” which said, among other things, “The family meal is not only the core curriculum in the school of civilized discourse; it is also a set of protocols that curb our natural savagery and our animal greed, and cultivate a capacity for sharing and thoughtfulness . . . the ritual of nutrition helps to imbue families, and societies at large, with greater empathy and fellowship.” Polls tell us that in the United States today, something like seventy-five percent of the nation’s children never share meals with their families. We’ve adopted a “convenience” pattern of eating, and forgotten what living, delicious food is.

A compelling reason for the decline of the family meal has been the onward march of commercial “convenience” foods. Modern technology makes it easy for food to be consumed on the run, in small units. Microwaves and freezers and dehydrated foods make it possible to feed people more “efficiently,” in crude economic terms, than with food prepared by hand, by and for an extended family. We have to make time to do this. I don’t think people know what they’ve thrown out. They’ve adopted that other pattern of eating, and forgotten what living, delicious food is.

If we want kids to join us at the table, we have to show them why. And one of the biggest reasons is that you learn at the table. Above all, you learn how to use your senses. And you either use your senses, or you lose them. They get dulled. You settle for the routine and the mediocre, in food and everything else. There is so much information that comes from sensual stimulation — information that comes to you immediately, even faster than over the Internet. I’m convinced that teaching children to eat food together is the best way to teach them to open up their senses. It will improve their ability to communicate — not just about food, but about everything. And they will grow up to be wiser, happier people.

If all of us were to encourage our local schools to start programs in gardening and eating, we could have an impact.

Kids have to be taught that fresh, nourishing food is their birthright — that wholesome, honest food should be an entitlement for everyone. To try and get this message across, I have joined some neighbors, parents, and teachers at the Martin Luther King Junior Middle School in Berkeley, California, to plan a food curriculum. For years, whenever I drove by the school, I was struck by how run-down the schoolyard looked, and I thought: What a great garden this would make. What a great thing it would be if the students not only got to plan, plant, and cultivate a garden, but if they got to actually use that food to cook school lunches for themselves. To my delight, the principal at the school thought this was a good idea too, and now we’re well under way to making a food curriculum a reality.

We are calling this project the Edible Schoolyard. These are some of the events we have created: In December 1994 we did a ritual seeding with 150 adults and children who broadcast seeds for the cover crop while drums timed the march across the field. In January, we made sherbets for 500 kids: Meyer lemon, tangerine, blood orange, or lime. There was a raffle and the winner won dessert of the fruit he liked best. We have built an adobe oven near the garden site for bread and pizza baking. And in October we gathered the community together on the full moon to celebrate harvest.

The kids are extremely receptive. Now at King School, they are getting boxes of produce from CSA (Community Supported Agriculture) with Terra Firma Farm — each class receives a box every week. One of the teachers was telling us at a garden design meeting about how the kids in her class washed and trimmed and cut up the ingredients to make a salad. “Now wait,” she said. “Before we start eat-

ing, let’s stop and think about the person who tilled the ground, and planted the seeds, and harvested the vegetables. And then we chopped up the vegetables and put them in this bowl and made this big salad . . .” The kids stood up at their desks and gave the salad a huge standing ovation!

It’s all about the quality of life. I believe food is a medium for us all to do more meaningful work in our own lives. And more than that, I believe we have an ethical obligation to do this work, for the sake of humanity — better lives for each other and for the generations who come after us. ☺



SLOW (SEE P. 27).

You either use your senses, or you lose them. They get dulled. You settle for the routine and the mediocre, in food and everything else.

Blueprint for a Green School

Jayni Chase. 1995; 670 pp. \$59.95 postpaid. Scholastic, Inc., PO Box 120, Bergenfield, NJ 07621; 800/325-6149.

After reading this book, you'll never look at schools in quite the same way. This hefty tome probes every corner of the campus — the auto shop, the cafeteria, the copy machine, the landscaping, and the water supply — to assess its potential for pollution. The picture is pretty scary. The average school, apparently, is a micro-environment loaded with toxic pitfalls, from the volatile organic compounds in the art supplies to the dioxin residue in the tampons (so thoughtfully provided in the ladies' room). Thankfully, the **Blueprint** is also loaded with alter-natives and actions one

can take to alleviate the noxious threats.

The first seventeen chapters act as a do-it-yourself guide to surveying the school and would be useful to administrators, parents, or community volunteers. Teachers can generate curricula from the suggested activities ("Encourage reports on plant-based diets or other aspects of sustainable eating . . ."), and they'll love the extensive lists of publications,

organizations, suppliers, and educational activities that fill the last three chapters. Although its gray text blocks and black-and-white illustrations give it a sober, school-marmish mien, this one-stop resource can take the place of a dozen less exhaustive texts. —Chiori Santiago

A truly outstanding field guide to eco-literacy in learning locales. —PW

“Implementing a grounds design and nonchemical (or least-toxic) school and grounds maintenance policy can be rewarding for students, teachers and parents as well as for grounds staff and school administrators. The process offers a firsthand, hands-on learning opportunity for everyone in the school community. Students can learn about insects and natural predators, the toxic effects of chemicals, and environmentally sound ways of managing natural resources. Teachers can gain a new “laboratory” for teaching these concepts and can enjoy a less toxic workplace. Most parents will feel greater peace of mind knowing that their children are being exposed to fewer pesticides at school.

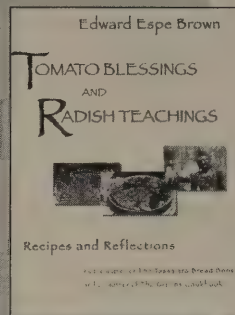
Tomato Blessings and Radish Teachings (Recipes and Reflections)

Edward Espe Brown. Riverhead Books, 1996; 293 pp. \$27.95.

With excellent instruction for conscious cooking for the beginner, as well as new ideas for the experienced and jaded cook, Edward Espe Brown (author of *The Tassajara Bread Book*) communicates his respect for the foodstuffs that nature provides us.

Tomato Blessings intertwines the spiritual lessons Brown learned as head cook at the Tassajara Zen Center with his simple recipes — jewel-like gifts to be discovered within the larger life lessons.

—Mary Evelyn



“Baked Beets with Dried Cranberries and Sun-Dried Tomatoes

This recipe turned out to be “alchemical,” which is to say that the flavors unite and blend in a surprising way. Dried cranberries (which are somewhat sweetened or they would be really tart) are becoming widely available.

Serves 4 to 6 people
• 12 to 15 sun-dried tomatoes
• 1/2 cup dried cranberries

- 5 to 6 beets (probably 2 bunches)
- Peel of half an orange, grated
- Salt

If you are using sun-dried tomatoes that are not packed in oil, place them in a saucepan, cover with water, and cook several minutes. Add the cranberries for half a minute at the end. Drain and reserve the liquid. Slice the sun-dried tomatoes into narrow strips.

Trim the stems off the beets and place them in a baking dish with the

“One of the foods I turn to to see me through is beets. When wandering the market bereft, I hear the beets, deep, dark, purple red, calling out to me, “We are here for you.” Beets, I feel, have extracted the blood of the earth — made dirt red, warm, and flowing. Eating beets is like receiving a transfusion.

Others have noticed this, too, how working with beets is a blessing, which in a literal sense means to be sanctified with blood. I saw one friend shortly after she emerged from the kitchen. Her hands, even after washing, were glowing with telltale rose, and she was beaming the praises of beet. Peeling them, she said, is “unbelievably sensual.”

Beets are not glamorous or exciting. Their curves, though ample and full, are not smooth, sleek, or beguiling. The greens that top them are sturdy and strong, rather than perky or exuberant. We don't turn to beets for fun or good times, but like a friend or a companion, they will be there, trustworthy and stable.

water from the sun-dried tomatoes (or add enough water to fill up the pan 1/4 inch). Cover the pan and bake in a 375 to 400-degree oven for 1 hour or more until they are fork-tender.

Remove beets from pan and allow to cool enough so that you can remove the skins, roots, and stems. Then cut up the beets and put them back in the baking dish with the tomatoes, cranberries, orange peel and a touch of salt. Reheat in the oven before serving.

Kids Gardening

(A Kids' Guide to Messing Around in the Dirt)

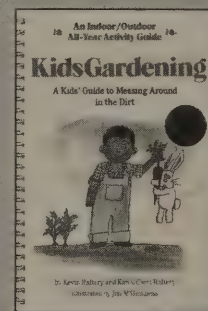
Kevin Raftery & Kim Gilbert Raftery. Klutz Press, 1989; 88 pp. \$13.95.

My six-year-old looked over my shoulder as I flipped through this book and said: “Ooooooh — are we going to try that?” Klutz Press knows the formula that attracts kids: cute cartoony animals, colorful diagrams, a sense that you can't really do anything wrong. As the title suggests, this book goes easy on the technical stuff (composting, for example, is explained in five short steps), gently

encourages non-poisonous bug and weed control, and emphasizes a casual, accessible approach to growing and using veggies and flowers.

A “Kitchen Gardening” section introduces such rewarding standbys as the avocado-with-tooth-picks-in-water trick, and offers an alternative to kids who don't have backyards. Even if the garden turns out to be a complete failure, the kids can have fun trying the recipes for cucumber

pickles or making a “bug bottle” — big thrills for a six-year-old. —Chiori Santiago

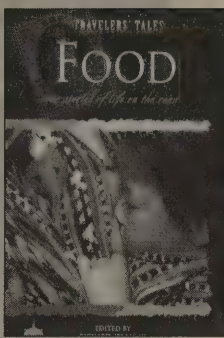


Travelers' Tales: Food

(A Taste of the Road)

Richard Sterling, Editor. O'Reilly & Associates, 1996; 444 pp. \$17.95.

Food, the latest in the Travelers' Tales series of collected writings, is the kind of book you want to take slowly, to spread out the pleasure. Richard Sterling intelligently edits over fifty writers who share their experiences with cooking and eating all over the world. Some authors, such as M.F.K. Fisher, are well known. Others are new or crossover writers from other vocations. All write engagingly. Interspersed throughout the stories are related food excerpts culled from a broad range of writings, everything from the *Joy of Cooking* to the Bible. I'll just read one more story tonight; well, maybe just one more. —Mary Evelyn



“ [Murad] veered over virgin sand and we settled in a dip between the dunes. A weft of yellow and mauve vetch shone all over the savannah, and poppies turned the ridges scarlet. He had forgotten nothing. A felt carpet, such as once covered Turkoman yurts, was unraveled over the sands. Bags of spiced mutton appeared, with two charred samovars, an outsize stewing-pot, a basket of raw vegetables, sheafs of kebab skewers and some fire-blackened bricks. As we scavenged for dead saxual — the wind-blown plant whose pallid stems litter the whole country — a familiar euphoria broke out. Their voices were light and bantering. Their bodies seemed balanced only precariously on their bow-legs, as if they longed to leap on horseback. Soon we had a triple blaze of fires going. The samovars were cremated in a nest of flaming branches, the shashlik oozed and spat over charcoal heaps, and the stewing pot — into which Murad had tossed a calf's head —

simmered balefully on a brick hob. The men's faces lit up in sybaritic grins. The bitterness left the big man's mouth and the Mongoloid's face dimpled in glee.

Isn't this better than home? he cried, as we settled ceremoniously on the carpet. “Nothing compares with this!”

Soon the *shashlik* was being thrust triumphantly from hand to hand. Dribbling blood and fat, it was tough as rope. But the three men swallowed each morsel wholesale, or clamped it between their teeth like mastiffs and worried it to and fro, until it separated with a noise like tearing sheets. They celebrated every mouthful with a carnivorous burp, and dipped gluttonously into mountains of radishes and olives. The brief respites between skewers resounded with anticipatory grinding of gold and ivory molars and the smack of oily lips. They looked artless and timeless. At any moment, I thought, they might break into shamanistic chant or propose a raid.

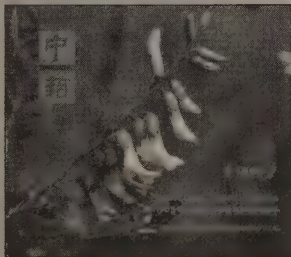
—COLIN THUBRON, “Then I Slept.”

Elixir Farm Botanicals

General Delivery, Brixey, MO 65618, 417/261-2393, fax 417/261-2355, efb@aristotle.net, www.trine.com/GardenNet.ElixirFarm.efb.htm

Elixir Farm maintains a bioregional botanical garden on an agricultural land trust in the Missouri Ozarks. It includes a research center, seed bank, and apprentice farmworker training program. They seek to be, in their words, one “secure node” for biodiversity within their bioregion. They practice organic and biodynamic gardening and sell seeds, roots, and plants of Chinese and indigenous medicinal plants. The cata-

logue unfolds into a color poster with photos of the plants offered, medicinal uses, and growing instructions. —Raymond Himmel

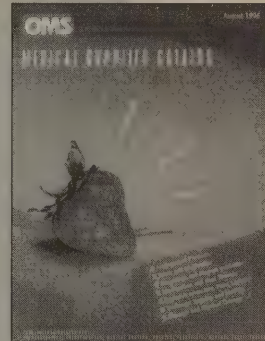


“ [*Codonopsis pilosula*. Bastard Ginseng. Dang Shen. (Above.) *Codonopsis*, [is] a beautiful, vining perennial. Its cultivation is easy. Like many rare and tiny seeds, we start them in sterile potting soil, pot on when they are seedlings, then transplant after danger of frost . . . Roots are used for energy deficiency, lack of appetite, strengthening the immune system, lowering blood pressure and invigorating the spleen. Its reputation as “poor man's ginseng” is well deserved.

The OMS Medical Supplies Catalogue

1950 Washington Street, Braintree, MA 02184; 800/323-1839, 617/331-3370.

Since 1979, **OMS** has evolved from a black-and-white four-page flyer offering limited acupuncture supplies to a beautiful eighty-three page four-color catalogue featuring the most complete line-up of modern acupuncture supplies in the United States. Whether you're looking for needles, moxa, cups, magnets, electric stimulators or latex acupuncture models of horses, pigs, or dogs, you will find it here. —Raymond Himmel



“ Our region, where the Prairie meets the Eastern deciduous forest, is a rich natural arena for plant diversity. There is a relationship between our region and certain areas of China — often called a disjunct botanical region. At the present time, we have inventoried over 150 medicinal plants growing on the farm and in the forest that are used in Chinese medicine. This unusual fact leads us into taking a closer look at whatever already exists here as medicinal plants.

Peppers of the World

Dave DeWitt & Paul W. Bosland. Ten Speed Press, 1996; 219 pp. \$19.95.

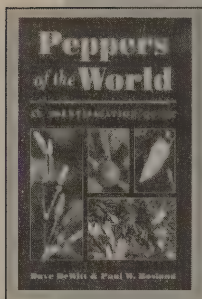
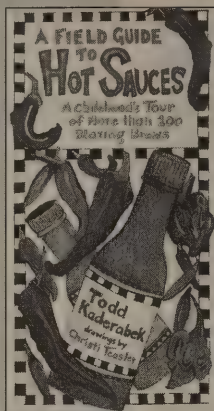
A Field Guide to Hot Sauces

Todd Kaderabek. Lark Books, 1996; 132 pp. \$12.95

Goodbye ketchup. Chile-based hot sauces have taken the lead in US sales. The five species of capsicums, native to Brazil, have spread across the planet entering cuisines

and medicine from Ethiopia to Szechuan. **Peppers of the World**, written by growers, has mild prose and pungent info on seed sources, breeding your own hybrids, and co-evolution. **Hot Sauces** is a fun chilehead tour of 120 of the best blazing brews, with access to hunt them down. I

flipped to my hometown, Tucson's Poblano. It said "one of the best on the market" and won my heart. —PW



“Poblano Salsa Ranchera

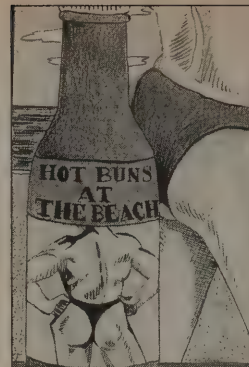
Nicolas C. and Oscar R. Segura Inc., 648 West Lester Street, Tucson, Arizona, 85705.

Ingredients: Chili peppers, spices, distilled vinegar, salt, benzoate of soda

Comments: This is one of the best American sauces on the market and one that makes you wish you knew what the “spices” in the ingredients really are. Thick, and deep red in color, this sauce is loaded with delicious poblano flavor. Don't skip it because it's American — its roots are in Mexico and it tastes great!

“Hot Buns at the Beach

Manufactured for Starboard Restaurant, 2009 Highway 1, Dewey Beach, Delaware, 19971, 800-998-FIRE (call for a catalog).

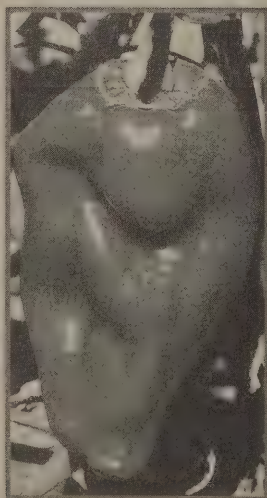


herbs, flavors, and spices, and natural xanthan.

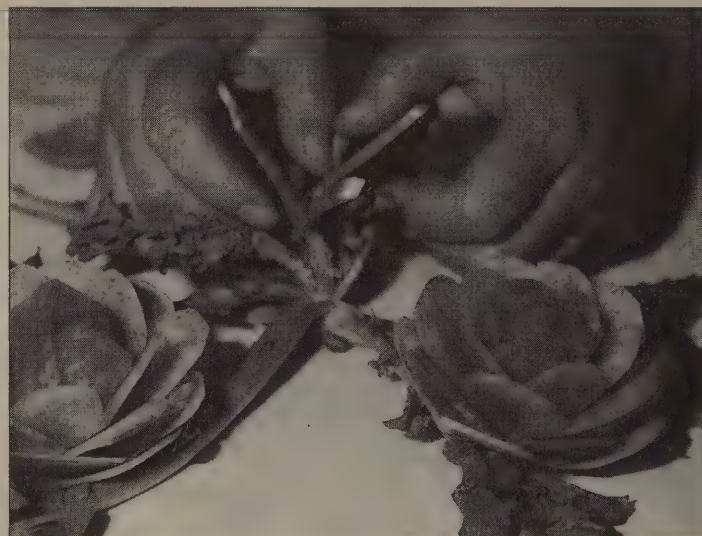
Comments: This is one sauce I can slather on everything that dares to cross my plate. It's a bottle of really interesting sauce, with a depth of flavor not found everywhere. It's also plenty hot, hotter than any buns I've ever seen at the beach (actually, I'd rather ogle a bottle of hot sauce any day). This is also the only way you'll get me to eat sweet potatoes. Inhale enough of this sauce and you'll probably have hot buns of your own!

68

Chiles are called “bird peppers” because their hotness repels mammals. Birds are immune. The plant advertises by its red color, upright fruit stalk, and loose connection. All bird friendly. Humans breed them to produce stronger attachments to prevent bird removal, as well as for more variety in taste, size and shape.



Left: USDA 297460
Botanical name: *Capaicum annuum*. Common name: bell.
Location: Spain.
Seed source: USDA.
Pod length: 5 in.
Pod width: 2.75 in.
Immature color: green
Mature color: red.
Comments: Nonpungent.



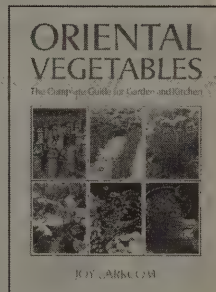
The Manchurian “Beauty Heart” radish being deftly carved into a peony by a chef in Beijing.

Oriental Vegetables

(The Complete Guide for Garden and Kitchen)

Joy Larkcom. Kodansha International, 1991; 232 pp. \$29.95.

I got hungry reading this book. Part One is a richly illustrated, inspiring, and exhaustive survey of the many types of veg that grace your sushi or chow mein. Parts Two and Three tell how to grow and cook these vegetables. —Raymond Himmel



“Lotus Nuelumbo nucifera

This well-known, perennial aquatic plant, with its beautiful white and pink water-lily flowers, is a native of Asia, growing mainly in shallow water ponds. . . . Leaves, flowers, flower buds, and seeds are all edible, as are the strange young fruits, shaped like a tea cosy, perforated like a watering can rose, and prized by flower arrangers for their curious elegance. . . . The young rhizomes have a crisp texture and a mild, characteristic flavour. They are cooked in many ways: stir-fried, mixed with other vegetables such as red peppers, stuffed with pork, stuffed with rice and steamed, in soup, battered and fried, as well as being candied for special occasions.

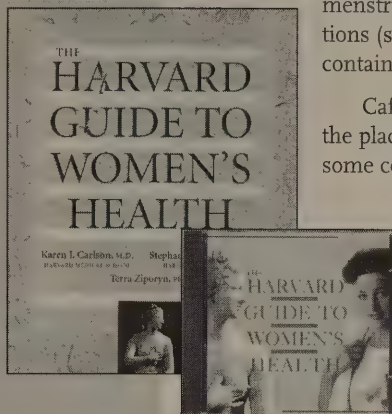
The Harvard Guide to Women's Health

Karen Carlson. Harvard University Press, 1996; 640 pp. \$24.95.

While managed health care may be helping to cut the costs of medical treatment, it has also imposed severe limitations on the time doctors spend with patients. Never before has it been so imperative for medical consumers to have their own reliable information sources. This is an excellent source for any woman who wants to be more proactive in determining her best course for medical treatment.

The book focuses not only on medical conditions to which a woman may be prone, but the effect of common diseases on uniquely female physiology. The articles are written unambiguously, with a minimum of medical terms. Additionally, the book contains invaluable references for health organizations, newsletters, phone hotlines, and online resources. For computer aficionados, a companion CD-ROM lets you flip easily through databases without spraining your back lifting the weighty volume.

It's a harsh fact of modern medical economics that healthcare providers and patients are becoming strangers to one another. Thanks to the **Harvard Guide to Women's Health**, no woman has to be solely dependent upon the kindness of medical strangers. —Patrizia DiLucchio

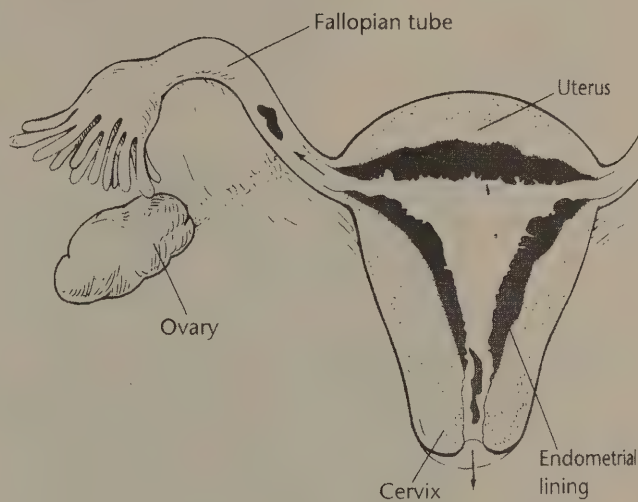


“A number of studies have suggested that caffeine may have a specific effect on women. One study of 841 women college students linked caffeine to symptoms of premenstrual syndrome. Women who think this might be applicable to them should make sure to avoid menstrual cramp medications (such as Midol) that contain caffeine.

Caffeine readily crosses the placenta, and there is some controversial evidence suggesting that drinking more than about 2 cups a day during pregnancy may slightly increase the risk of having a miscarriage. Thus, for the time being pregnant women may want to keep coffee consumption down to an average of about a cup a day, just to be safe. There is, however, no conclusive evidence at this point associating coffee drinking or caffeine with any known birth defect or growth retardation in the fetus.

When it comes to foot coverings, women have a lengthy record of foot abuse. Throughout history numerous attempts have been made to deform the female foot in the interest

of heightening sexual attractiveness. The link between feet and eroticism has a neurological basis: the feet and toes are rich in nerves that respond to sexual excitement — which is why feet often point or toes curl during sexual arousal and why “footsie” is such a popular game. As countless psychologists, anthropologists, sociologists, and historians have observed, feet and their coverings have been linked to sexuality, sensuality, and fertility in various cultures since the beginnings of civilization. Myths and customs linking shoes to romance are abundant throughout the world — ranging from Cinderella’s glass slipper, to the wedding custom of tying old shoes to the newlywed couple’s car, to the practices of young Sicilian women who put shoes under their pillows to help them find a husband or to French brides who keep their wedding shoes to ensure a lifetime of physical union.

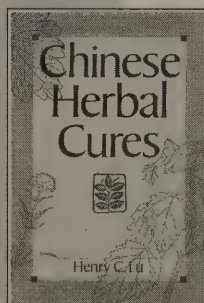


Most menstrual flow leaves the uterus by way of the cervix, but a small amount may go up the fallopian tubes, and enter the abdominal cavity, possibly setting the stage for endometriosis.

Chinese Herbal Cures

Henry C. Lu. Sterling Publishing Co., 1994; 160 pp. \$9.95.

The stories about how the herbs were named and used make a charming accompaniment to the usual, rather dry listings of the actions, indications, dosage, etc. of each herb. They convey the culture and flavor of old China and serve as potent mnemonics for the different herbs and their actions. You can almost imagine that you are being taught by a venerable Chinese herbalist. —Raymond Himmel



“On the grand-opening day of the clinic, the son of a judge fell ill and was perspiring profusely, so the judge brought his son to the clinic. The former disciple used the leaves of a plant to treat the young patient, and he used the herb in huge amounts, intending to produce quick results. Rather unexpectedly, the patient began to perspire even more profusely after taking the herb. And his arms and legs became as cold as ice; in fact, his entire body was shivering with cold.

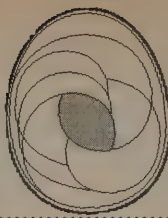
The judge was furious and rushed his son to the old herbalist who then

told the judge that his former disciple had used the wrong part of the plant; instead of using the roots of the plant, he had used the leaves, without realizing the leaves could actually induce perspiration.

The judge later summoned the young herbalist, and told him, “in treating patients without much knowledge, you are asking for trouble.” Hence, the plant came to be known as “ask-for-trouble.”



Left: Mahuang (Ask-for-Trouble) Below: Mahuangen (Root of Chinese Ephedra).



Competition and cooperation, symbiosis and parasitism. Mixed together by chance, emotions and reason. Butterflies, milkweeds, farmers, and birds. Ecosystems, market systems, techno-spiritual systems. Tools and practises for us folks caught up in dynamic, interactive time.

RANCHING AND ENVIRONMENTAL COMMUNITIES began as competitors and are evolving into cooperators. Nothing is easy, especially when major media portray news from the West as an eternal gunfight at the OK Corral with two (and only two) sides and

only one winner. In the media, environmentalists scream about welfare ranching, ruined riparian, overgrazed allotments, and sloppy predator control. They finger-point at the few ranchers that confirm this image. Not frequently reported are the enviros who have noticed that the alternative to cattle spreads is twenty-acre ranchettes, subdivisions, mini-malls, over-recreation, increased poaching, and release of exotics. These enviros respect many ranchers as the humans closest to their land, intimate and grounded in its geography, long-term experience with fires, seasonal rain and drought and livestock/wildlife grazing patterns. In short, allies as the best daily monitors and guardians of place.

At the same time, the media have been slow to recognize that ranchers have lost their rubber stamp. Urban voting blocks now scrutinize grazing practices on Bureau of Land Management and Forest Service lands. They insist on multiple-use, environmental assessment, and bid for leases to protect sensitive species or riparian corridors. The media completely ignore ranchers' most serious threat: the grain producer/feedlot/packing house centralized pricing structure by giants like Cargill. Their economic stranglehold has severely blemished any John Wayne rancher self-image of economic independence. Images of fine range-fed beef have been altered into images of chemically-stuffed hamburger, hazardous to your health. Many family ranches live on the edge of collapse.

Neighbors may have sold out to subdivisions, tipping the land balance toward suburbia, hurting remaining ranches more than any environmental group. Ranchers who want to stay family ranchers need new allies.

So began the shift from competition to cooperation, the search for common ground and partnerships agreed upon by the local and regional community. New working rules for human behavior and the rules for changing the rules pulse through the heart-and-soul of peace on the range. Academics give "working rules" the fancy moniker "institutional arrangements for adjudication, arbitration, mediation, voting consensus and negotiation."

Institutions have an oppressive reputation, but, with a little sense of humor and a string of fine pot-lucks, the new friendships that ultimately underlie all human agreements can be forged.

Here are three coevolution stories.

The Jaguar and the Malpais Borderlands Group

Jaguars once wandered and reproduced deep into what is now

CoEvolution of Ranching & Conservation Communities

Peter Warshall



WARNER GLENN

the United States. In 1904, a female with cubs was killed at the Grand Canyon. A jaguar was shot on the Texas/Louisiana border in the 1940s. The biggest cat of North America, the jaguar wanders hundreds of miles. Long thought to be bygones, jaguars appeared in rural legends and in occasional rumors and unconfirmed sightings. *Eyes of Fire* tells the story of rancher Warner Glenn tracking a "mountain lion" that was actually a jaguar in the Peloncillo Mountains of Arizona in 1996. For us Southwesterners, the sighting could not have happened to a better man or in a more opportune place. Only those who have tried cat tracking can appreciate the savvy that Warner possesses. His cat knowledge allowed him to second-

guess the jaguar and position himself to take the first photos of a living jaguar in the United States (see back cover).

The sighting once again stirred up America's present confusions: who are the best guardians? who are the most responsible? what working rules can save the jaguar in Arizona?

The jaguar wandered into the opportune place because the Peloncillo mountains are part of the Malpais Borderlands Group (p. 72). The ranchers of the Malpais Group immediately set up their own Save the Jaguar Fund to compensate any rancher for a killed calf, to prevent anti-predator feelings from erupting, and to further protect jaguar habitat. Most ranchers opposed listing the jaguar as endangered. Most local ranchers feared that listing would pile on another layer of regulatory burden and shift power toward 'varmentalists monkey wrenching.'

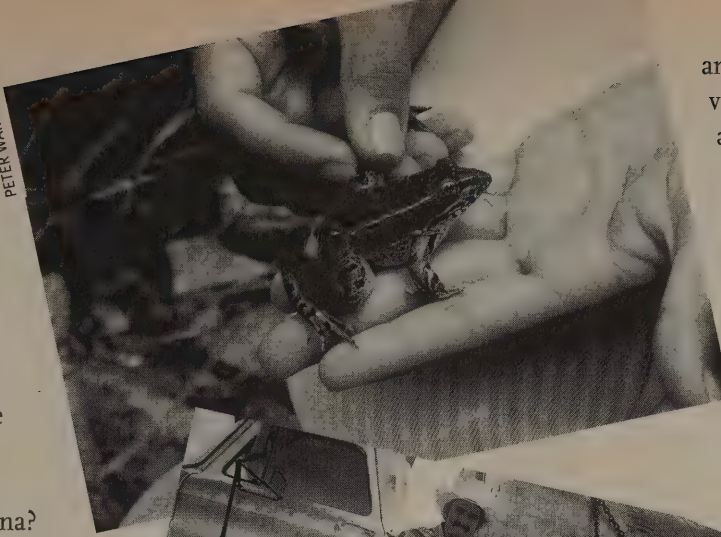
The Southwest Center for Biological Diversity, which did not trust any of the public agencies or their relationship to the ranching community, sued for listing and won.

These "trust" setbacks are as common as dust storms in the Southwest. In bootheel country, some see UN diplomats behind every cactus. Others see a conspiracy of Freddie's (federal agents) and ranchers to kill off every unique and special critter for the fast buck. But, the long-term futures for cowboy/enviro partnerships are outstanding. They have a common enemy: subdivisions that destroy ranching, grassland wildlife, and inter-mountain corridors. They have a common love: much-prized open space. Both know that they need to change obsolete rules and that the rules of public agencies can thwart change. Both agree, in principle, that ranchers should be compensated for nurturing and protecting game, fish and sensitive species; and that creating special markets for consumers who want to buy beef that will neither poison their bodies nor hurt the landscape could improve producer price and ranch stability. In Cochise and Hildago Counties, they're already cracking open a few beers and talking partnerships for monitoring and experimental burns and fencing riparian.

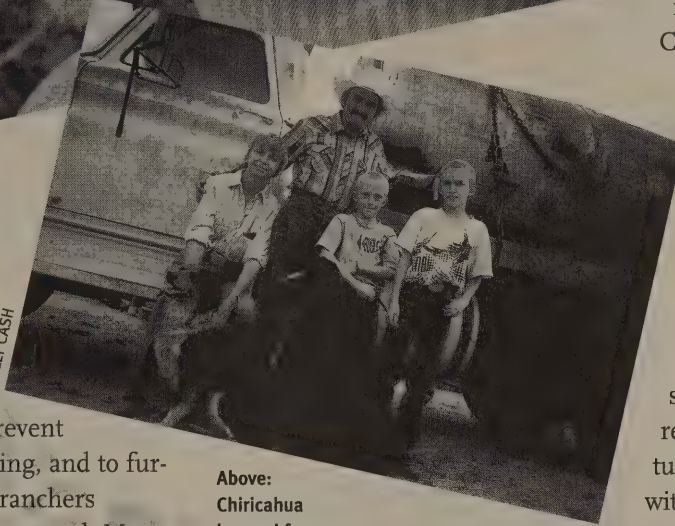
Cattle Tanks and the Chiricahua Leopard Frog

On Arizona's public lands, with huge distances between water bodies and a scarcity of federal agents, the fish-bait dealers who dump bull frogs or exotic salamanders into streams

PETER WARREN



KELLY CASH



Above: Chiricahua leopard frog.
Below: The Magoffins.

and cattle tanks and then return to harvest them for bait sales cannot be managed. The released bull frogs consume the eggs and tadpoles of the native frogs. There is simply no hope on public lands of stopping releases. The only hope for the Chiricahua leopard frog is on private land with controlled access. Enter the Magoffin family, who discovered this rare frog in one of their cattle tanks. Chris and Mike, sons of ranchers Matt and Anna Magoffin,

"adopted" the frogs and the ranching family became their guardians. When drought struck and cattle tank water levels dropped, they moved tadpoles to a tank closer to water and then hauled in 1,000 gallons per week to keep them alive. They still search out bullfrogs and remove them from the ranch sanctuary. They formed partnerships with biologists. Their working rules are ethical, engaging, and fun.

Conservationists learned that there are limits to public land management and hope the Magoffins stay in business forever.

Beavers and the Downturn Riparian

Copper Creek on the 10,000 acre Purdy Ranch near Picabo, Idaho has been in the same family since the mid-nineteenth century. Around that time, beavers were trapped out for the pelts; 150 years later, the creek sported the regular symptoms of watershed disease — soil compaction, sagebrush invasion, intense storm water downcutting. In the 1980s, Bud Purdy combined a deferred grazing plan (keeping cows out of the riparian during critical times) with seeding and brush control. At first, he tried constructing dams to reduce channel erosion, but seventy percent of them would not hold against flood peaks. Lew Fence (Wood River Conservation and Development Council) and Dale Roberts (Soil Conservation Service) suggested beavers because their dams hold water better than human equivalents and beavers build and re-build them for free (or, at least, for inner bark). This is obviously a success story: the water table rose, there were thirty-three beaver dams in five years, the pool area exceeds six acres, with more wildlife, more riparian, longer flow seasons and some small trout. What is noteworthy is the combination of deferred grazing, beavers and the "Beaver Committee," a unique inter-agency group that transplants "problem" beavers that chew up semi-rural apple orchards, relocating the pest beavers to livestock-raising watersheds. The new coevolution of ranchers and conservationists usually requires new, less formal public/private institutions like the Beaver Committee.

The Working Rules for Livestock Raisers and the Conservation Community

Who's eligible?

Make a list of everybody and every organization that is eligible to make decisions about watershed ecology and economics. Be inclusive and, for the moment, don't fight about who is more eligible and who is less. Some groups like to write down the basis for eligibility.

What's happening?

Write down what actions are allowed or constrained, forbidden, required, permitted or encouraged at the moment. Some groups like to write down which ones are really enforceable. Out there on the range and wildlands, there can be lots of rules and no way to implement them.

What does everyone want?

Dreams, prayers, hopes, desires, whimsies. Have every eligible group write down what

actions they would like removed, changed or invented (e.g., return hunting license fees to the rancher who raises the deer; pay cowboys to monitor wildlife movements; allow birdwatchers access to see a rare bird).

New working rules.

Set inflexible rules for basic watershed needs. Set very flexible rules to preserve an arena for competition and cooperation (e.g., stocking rates in drought years, disasters from crashes in market price, fire, or populations of game, fish and sensitive wildlife).

Different rules for different ecologies.

Depending on where you live and the season or year, the rules may differ. The future requires rules in line with flux, not fantasies of an ever-stable Nature. For instance, different stocking and hunting

rates for normal rain years, drought years, a series of consecutive drought years, and above-normal rainfall years.

Rules to change the rules.

Decide on the steps required to protect, challenge and change the rules. Many times the partnership must convince public agencies to give ranchers a chance to experiment with special "demonstration project" rulings (e.g., special hunting and conservation rules, modified grazing permits to rest range or improve riparian, public/private intentional burns).

What do we know?

The eligibles decide what knowledge (information and wisdom) must or must not be provided.

Payoffs and punishments.

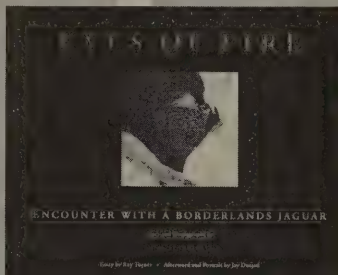
They must be assigned to individuals depending on their actions.

Malpais Borderlands Group Save the Jaguar Fund

PO 3536, Douglas, AZ 85608; 520-558-2470.

The Malpais Borderlands Group includes eight ranches covering a million acres of private and public lands. The nonprofit, volunteer organization is located in one of the most isolated and biologically rich regions of the US, along the New Mexico, Arizona and Mexican border. They have set a daunting task for themselves "to restore and maintain the natural processes that create and protect healthy, unfragmented landscape and support a diverse, flourishing community of human, plant and animal life."

Their dream is a for win-win situation. Profitable ranching in an unforgiving market, the preservation of open space while subdivision developers hover like vultures over their grasslands; and preservation of viable populations of sensitive species. They have started grass banking (moving cattle to a ranch which acts as a commons for drought year disasters on other ranches). Access to the grass bank comes from a strictly voluntary conservation easement which prohibits a subdivision as long as the group exists. The value of the easement can be translated into cattle-time on the commons. They also fund work on the rare Gould's turkey, the jaguar, re-introducing prairie dogs, the Chiricahua leopard frog, and other sensitive species. They have set up long-term grassland monitoring — the key to understanding whether it's soil, weather, fire, exotics or human influences that most influence the range. —PW



Eyes of Fire

(Encounter with a Borderlands Jaguar)

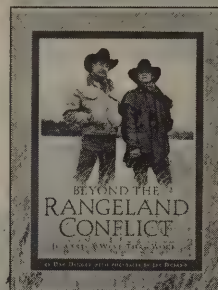
Warner Glenn. \$16.00 (\$19.50 postpaid). Glenn Ranch, PO Drawer 1039, Douglas, AZ 95608; 520/558-2470; fax 520/558-2314.

Part of purchase price goes to the Jaguar Fund. Additional tax-deductible contributions appreciated.

Beyond the Rangeland Conflict (Toward a West That Works)

Dan Dagget. 1995; 104 pp. \$19.95 (\$21.95 postpaid). Gibbs Smith Publisher, PO Box 667, Layton, UT 84041; 801/544-9800.

A collection of stories about ranchers, enviros, and government land managers who have been able to get beyond conflict. —PW



Rangeland,
Gray Ranch,
New Mexico



Slanted Truths

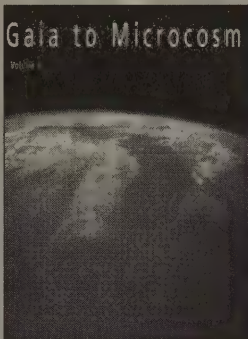
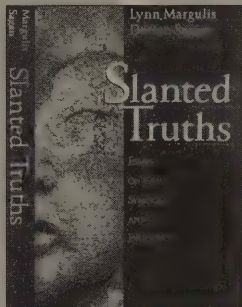
Lynn Margulis and Dorion Sagan.
Copernicus, an Imprint of Springer-Verlag,
1997, 346 pp. \$28.

Gaia to Microcosm Vol. I

Lynn Margulis and Dorion Sagan.
Kendall/Hunt, 1996, video
and 108-page book, \$79.95
(\$83.95 postpaid), PO Box
1840, Dubuque, IA 52004-
1840; 800/228-0810.

Lynn Margulis has been the most imaginative and groundbreaking American biologist for a quarter century. Her outstanding knowledge of microbes, her work on cell formation by symbiosis, her contributions to the Lovelock/Margulis Gaia theory, her recent work on the "tailed" microbes and the evolution of nerve cells, etc., etc. qualified her years ago for Nobel accolades.

I find it sometimes difficult to explain to friends why microbial "natural history" is so damn exciting with its multi-syllabic, Latinate invisibility. In most minds,



microbes = disease more than photosynthesis. **Slanted Truths** is the best collection of essays on all aspects of Lynn's work (Gaia, symbiosis, autopoiesis and evolution) as well as the cultural/philosophical barriers to the acceptance of each new paradigm she has nurtured. The video has no narration. The music is by her son Jeremy; the text (in a separate pamphlet) by her and her son Dorion. After the first run — full of "what's that?" and "what's happening?" — the video requires re-runs and cross-referencing to the text and to **Slanted Truths** to "see" what is going on. If you take on this video and her essays and patiently osmore, your view of a pond, the planet and the self with all their seasonal colors will be forever enriched. —PW

“As computers and machines come together in the new field of robotics, so robotics and bacteria may ultimately unite in the so-called biochip. Based not on

silicon but in complex organic compounds, the "biochip" becomes an organic computer. Manufactured molecules, like plants, photosynthesizing would of course exchange energy and heat with their surroundings. Energy would be converted not into cell material, but into information. The possibilities inherent in such a development are awesome. "Living" computers could trade millions of hydrogen atoms per second and perhaps be integrated into conscious organisms. At this distance in the future the imagination is overwhelmed. —SLANTED

Anima Mundi

Directed by Godfrey Reggio, music by Philip Glass. \$14.98 (\$18.98 postpaid).
Miramar, 200 Second Avenue W., Seattle, WA 98119, 800/245-6472.

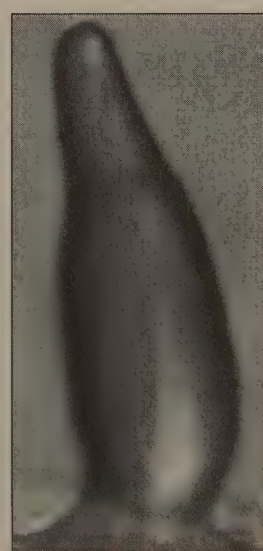
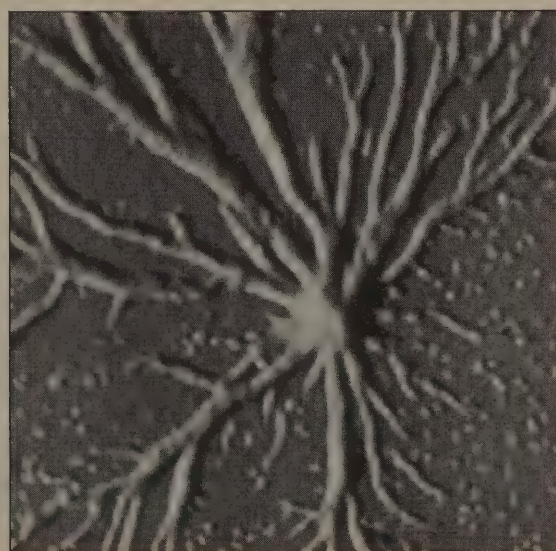
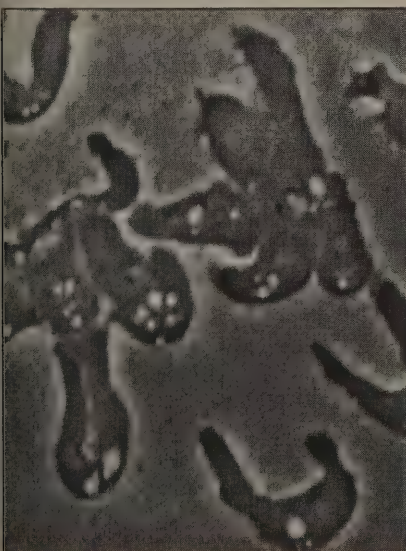
A large-screen gem, a TV-screen fascination. Godfrey Reggio is my favorite renegade cleric, a kind of St. Francis film director who changed movie-making with his production of *Kowloonisqatsi*. Limited to stock footage and 30 minutes, **Anima Mundi** alters the timing of animal movements, including long face-front holds, shaping the timing to the lovely point of each species' utmost gracefulness. No words. Philip Glass's sound track is unusually rhythmmed. (His scores are better known for their harmonics and modulated tones.) As implied in its Latin title, **Anima** reveals the animal kingdom, the animistic inner self of the world, the animated wind and breath of the body-spirited, all with equanimity and beauty. —PW



Contracting *Ophrydium* zooids and filamentous cyanobacteria. —GAIA TO MICROCOSM

“The development of death on schedule, the first of the sexually transmitted diseases, evolved along with our peculiar form of sexuality. The privilege of sexual fusion — the two-parent "fertilization-meiosis" cycle of many proto-cists, most fungi, and all plants and animals — is penalized by the imperative of death.

“Kefir, by not having evolved sex, avoids having to die by programmed death. —SLANTED TRUTHS



Left: *Minakatella* amebas aggregating. Center: *Minakatella* amebas join the pack, forming a "superorganism." Right: *Minakatella* "slug" composed of hundreds of amebas. —GAIA TO MICROCOSM



Pollinator a



A small marsupial known as the sugar glider crawls among the conelike blossoms of a banksia.

Illustrations by Paul Mirocha.

AS I CAMP ALONE IN A NARROW canyon, waiting for a nocturnal pollinator to visit an endangered wildflower, I recite the names of threatened pollinators from around the world:

Golden-manteled saddle-backed tamarins, moss-forest blossom bats, little wood-stars, turquoise-throated pufflegs, dibblers, apricot-breasted sunbirds, Duvacel's geckos, mahogany gliders, Hoey possums, Marianas flying-foxes, crowned lemurs, purple-backed sun-beams, marvelous spatuletails, yellow-footed honeyguides, four-colored flower-peckers, Bishop's oo's, and Regent honeyeaters.

These sounds may be all I ever get to know of these critters. Many of these pollinators are known by just a few diligent zoologists who have had the fleeting luck to be in the right place at the right time. A number of these threatened species of pollinators — some 82 mammals, 103 birds, and one reptile — have dwindled to fewer than a thousand individuals.

Like the endangered wildflower I am babysitting this evening, little is known of these pollinators' life histories. We presume that they were effective pollinators of certain loosely coevolved blossoms, but some of them may merely be casual floral visitors. Or, perhaps, all we know is that one individual was once documented ducking its head into the blooms of a certain flower. Its behavior suggests it may be a legitimate pollinator. ("Legitimate" here distinguishes it from an animal that feeds on a plant's nectar or pollen without aiding in cross-pollination of the plant.)

Three nights ago, while suffering insomnia and a fever due either to flu or biophilia, I stayed up through the twilight hours counting how many of the vertebrate wildlife species in the 1994 *Red List of Threatened Animals* were likely to be pollinators. The 186 vertebrate species that I tallied are but needles in the haystack compared to the total

number of pollinators on this planet — some 100,000 invertebrate species are definitely involved in pollinating the 240,000 species of flowering plants. We are decades away from knowing with any confidence what percentage of these 100,000 invertebrate pollinators are imperiled. Instead, I had to focus on the 186 imperiled pollinating vertebrates. My late night calculation was that 15 to 18 percent of those potential pollinators are already of conservation concern.

I have been watching whipoorwills diving after hawkmoths, bats darting across the canyon, and micromoths landing on the flowers of the rare Kearney's blue star. As I reach to clamp a mason jar over an insect crawling on the blue star's inflorescence, I hear a scream echoing off the canyon walls. Somewhere on the higher



Gary Paul Nabhan is director of science at the Arizona-Sonora Desert Museum. If we need models of a scientist/organizer/educator of bioregions, Gary is the indicator species. Originator of Native Seed Search (to conserve native American and local cultivars), now involved with setting up Biosphere

Reserves along the US/Sonoran border, Gary is prolific, with eight books and dozens of technical reprints. A longer version of this essay appeared in the Fall, 1996 *Wild Earth* (POB 45, Richmond, VT 05477) and will be included in Gary's *Creatures of Habitat*, forthcoming from Counterpoint Press.

nd Predator

ridges behind my back, a female mountain lion is caterwauling, yowling her heart out. I clumsily screw the lid back on filled a glass jar. "Forty-five seconds of screaming, presumably puma," I write in my field journal at 8:54 p.m., in case I end up in the kill jar of *Felis concolor*.

While the relative rarity of carnivores such as cougars is well recognized, the worsening scarcity of pollinators has remained beyond the reach of our society's antennae. I can affirm, "This is the first cougar I've heard caterwauling in my quarter century of living in the Southwest." My wife can assert, "I've lived in puma country my entire life, and only once, in Big Bend, did I ever see one." But who on this Earth (other than the chiroptophiles over at Bat Conservation International) has a visceral sense of pollinator scarcity? And yet, when Martin Burd sorted out hundreds of case studies of low seed set in flowering plants, he

attributed 62 percent of these reproductive shortfalls to pollinator scarcity. An off-hand comment by Burd may be even more telling: the very showiness of flowers might be an indication that good pollinators are hard to come by.

Big, fierce carnivores may be naturally rare. If so, the last century's declines in seldom-seen nectar-feeding vertebrates may be even scarier than those that meat-eaters have suffered. A roost site in the Philippines once housed hundreds of thousands of flying-foxes; today you can witness a few hundred on the best of nights. The Panay giant fruit bat is altogether gone from the Philippines. The Okinawa flying-fox is extinct; so are the ones from Palau and Reunion. The Solomon Islands lost their endemic tube-nosed fruit bat, while Puerto Rico lost its flower bat. Cuba has lost its red macaw. No one is sure whether turquoise-throated pufflegs exist in Colombia or Ecuador any more. When was the last time any birder you know spotted an Oahu au? A kloea? A Koha grosbeak? A black mambo? Ula-ai-hawane? To add insult to injury, only two reptiles have ever been studied as legitimate pollinators and one of them is already red-listed: Duvau-cel's gecko on a small island off New Zealand.

While rare carnivores and scarce nectar-feeders may differ in their intrinsic perceptibility to humans, they are similar in another way. Both groups of vertebrates demonstrate the connectivity between species essential to the healthy functioning and cohesive structuring of biotic communities. If pollinator guilds are defaunated, animal-pollinated plants that formerly dominated a community are likely to decline. Weedy wind-pollinated plants are likely to find open niches. If carnivore guilds are defaunated, grazing or browsing populations may explode, eliminating herbaceous understories or crippling the recruitment of woody canopy plants. In

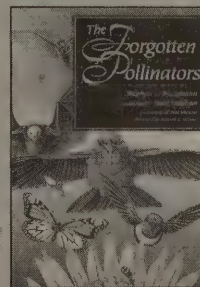
Left:
A lesser long-nosed bat visits the blossoms of the giant saguaro cactus on a hot summer night in the Sonoran desert.



Forgotten Pollinators

Stephen L. Buchmann and Gary Paul Nabhan. Island Press, 1996; 294 pp; \$19.95.

One in every three bites of food we eat is made possible by a bee or other pollinator. The web networks flowers (fueling stations), insects (sperm messengers in pollen envelopes), farmers and gardeners (habitat architects), predators, toxic insecticides, competitors (invasive insects), and consumers. Will humans be symbionts? Mutualists? Will they be chaos creators, deconstructing the floral communities? **Forgotten Pollinators** is the first book, written in easy-going, very personal, deceptively casual prose with typically impeccable line drawings by Paul Mirocha. —PW



Getting the Buzz On

Protecting Pollinators

Forgotten Pollinators Campaign

c/o Arizona-Sonora Desert Museum, 2021 N. Kinney Road, Tucson, AZ 85743; fpollen@azstarnet.com; www.desert.net/museum/fp/.

The umbrella group on the impending pollinator crisis and how to undo it. Publishes the *Pollinator Redbook* (A Global List of threatened Vertebrate Wildlife Species Serving as Pollinator for Crops and Wild Plants), *Ten Essential Reasons to Protect Birds and Bees*, bumper stickers and other educational materials.

Entomo-Logic

9807 NE 140th Street, Bothell, WA 98011; 206/820-8037; easugden@msn.com.

Orchard mason bees and blue orchard bee live nests; wooden nesting blocks;

the awesome paper straw nestiary; lots of education materials.

Bat Conservation International

512/327-9721; membership \$25/year.

Just what the title says. Great books, bat houses, and projects.

Sonoran Arthropod Studies Institute

520/883-3945. Best and most fun access to education for the young and for ignorant adults.

Xerces Society

503/222-2788. Wings comes with \$25/year membership.

The Security Council of the UN High Commission on Insects (if it existed). Great magazine on conversation of the spineless creatures.

either case, a shift in vegetation structure results from declines in animal populations which most of us seldom see. In both cases, the natural functioning of a biotic community is disrupted by the demise of ecological relationships between diffusely coevolved associates.

Just as most carnivores rely upon a relatively modest set of prey items, most pollinators depend upon a narrow range of flowering plants that feature certain fragrances, forms, presentations, and nutritional rewards. Coyotes and honeybees may be extreme generalists, but the majority of carnivores and nectar-feeders have limits to what they can opportunistically feed upon; their food choices are not random. In fact, pollinators may generally be more restricted in food choices — and thus potentially more vulnerable than carnivores.

As the dawn light begins to seep into the canyon shadows, I realize that I have not been selected as a puma prey item at this time. Broad-billed and Costa's hummingbirds arrive to visit the pale blossoms of the Kearney's blue star. So

do bee flies and skippers. Not every visitor is an effective pollinator; not every live hunk of meat to visit this canyon gets to sacrifice itself as cougar food. ⊕

STOP
Floral Abortion
Protect Pollinators

76

TOOL KIT

Homefront Pollinator

By Stephen (Dr. Buzz) Buchmann

To entice leaf-cutting, mason, and other bees into your garden, mimic their "home" architecture. They nest in the soft centers of stems and twigs or seek out beetle burrows in standing dead trees and branches. **Good news:** The gentle natives do not sting.



The Wooden Stud Nestiary

In a two-by-four or a four-by-four, drill 20 to 60 holes, about 5/16" in diameter, three to six inches deep. Hang near garden or landscaping. A diversity of diameters usually attracts a diversity of native bees.

The Milk Carton Nestiary

Coat the bottom of a milk carton (or tin can) with glue and fill it with plastic or paper straws (preferably paper). Cut off the ends of the straws so they are flush with the top of the container or slightly recessed. Hang "tube city" in a high place, protected from direct rain or sun. Attach to garden shed or house. If this is done in spring, bees will quickly find it and take up residence.

Bee Gardening

Bee-attracting flowers include salvias, sunflowers, penstemons (beardstongue), and all beans, especially redbud (*Cercis canadensis*).

WARNING: Hybrid flowers may be hazardous to community health. Most have glitz but little pollen and nectar. They can create a pseudo-food-web. Bees waste energy checking out the glamorous flowers and finding no food. Try to buy local varieties and natives. Beware of Burpee.



To support pollinators, a garden can have hummingbird and butterfly feeders, flowering plants, leaves for caterpillars, and nestiaries.

Left: on a Southern Arizona hillside, a female carpenter bee returns to her nest gallery inside the dried stem of a sotol.

Crossed Signals

WEEKLY NEWSPAPER—DO NOT DELAY
Date Mailed 3-21-97
BAD TIMES NEWS
VOLUME XXXII NUMBER 13
March 31, 1997
SINGLE COPY PRICE \$1.50

*Synthetic Chemicals Sabotage
Embryos, Fertility, Intelligence*

GOOD NEWS TIMES
VOLUME XXXII NUMBER 13
March 31, 1997
SINGLE COPY PRICE \$1.50

*Coming Health Revolution:
The Right to Live Toxic-Free*

**Michael
Lerner**

When Theo Colburn's *Our Stolen Future* came out last year, many saw it as a sequel to Rachel Carson's classic *Silent Spring*.

Since its publication, the book has played a central role in catalyzing an international debate on the threat of a new class of pollutants known as "endocrine-disrupting chemicals" (EDCs), dubbed "Gender Benders" in the press because one of their effects is to influence gender orientation in animals (the evidence is not yet decisive in humans).

While scientists are taking the debate regarding EDCs very seriously, media coverage of the health and environmental threats posed by EDCs has been amazingly deficient. Most of the press has focused on whether there is a global drop in human sperm counts and whether

the micropenises of alligators exposed to EDCs in a Florida lake ("Why Female Alligators Are Snappy," said one headline) were an omen for men as well.

If the popular press missed the boat, the respected science writer Janet Raloff did not. She wrote in *Science News Online*:

"Bearing the clumsy moniker 'endocrine disruptors,' these pollutants — including PCBs, DDT-breakdown products, dioxin and certain plasticizers — can mimic or block the action of natural hormones.

"By inappropriately turning genes on or off, these compounds can elicit a range of adverse effects. In humans, they may foster cancer in the breast and other reproductive organs. Prenatal exposures appear capable of altering brain development — with impacts on IQ and

behavior that persist at least a decade, perhaps for life.

"Most surprising, in some exposed wildlife, creatures whose genes instruct them to be male matured into individuals that look and act like females. The newly recognized potential of these pollutants to wreak havoc in so many ways, together with their ubiquity, has given rise to a sense of humility among toxicologists. The compounds have been detected in pesticides, plastics, dental sealants, contraceptives, and dishwashing liquids, and they contaminate water, plants, wildlife, and foods."

Before EDCs, we used to worry most about toxic chemicals' increased cancer risk. The higher the dosage/exposure, the greater the cancer risk. The new research shows that EDCs have a wide



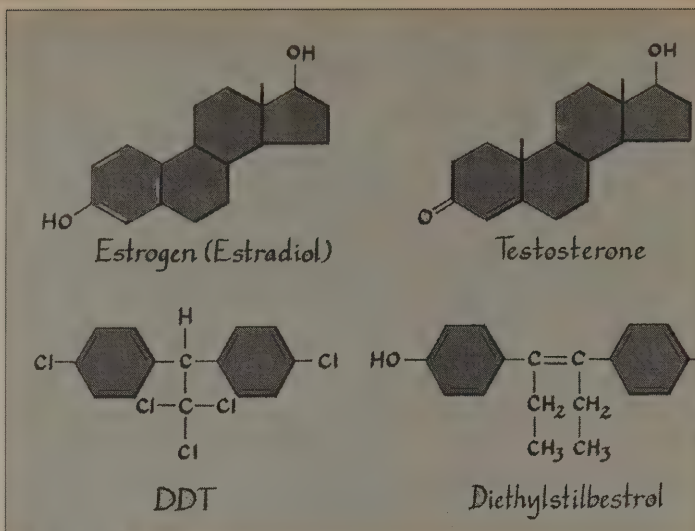
Frog with two legs growing from genital area

range of serious health effects beyond cancer; that they cause these effects at infinitely lower levels than are necessary to cause cancer; that these effects are fundamentally intergenerational (the health effects are in our children and grandchildren).

Scientists have begun to refer to EDCs as signal disruptors or signal transducers because they misguide fetal development in many ways, both known and unknown. Principally, they disrupt fetal development by mimicking hormones, or hormone-like substances, that come from two sources: the fetus's genes and the mother's bloodstream.

MINNESOTA POLLUTION CONTROL AGENCY

Structures of the female hormone drug, DDT and DES generically called "estrogen," and the natural male hormone, testosterone, compared with DDT and DES, a synthetic female hormone drug. DDT and DES proved to be effective mimics of natural female hormones, despite their dissimilar appearance.



DDT was, for example. It appears that a very wide range of synthetic chemicals may have endo-crine effects. Second, these effects may come both from persistent organic pollutants that are stored and concentrated in body tissue as well as from transient chemicals that may not store but may have profound health effects. Third, the effects of these chemicals may not be discrete but often additive or even synergistic. We currently test one chemical at a time; if, in reality, people are exposed to vast cocktails of these chemicals, this is a serious problem.

GLOSSARY OF CHEMICALS

Chemical

A substance with a distinct molecular composition. Different from element (the constituents of a chemical) or the material or product made from it or a blend of chemicals.

Dioxin

A name for a group of persistent, very toxic molecules. The most toxic form is 2,3,7,8-tetrachlorodibenzo-p-dioxin or TCDD. Dioxin was the contaminant of Agent Orange. About 20 dioxin-like compounds are also considered toxic. The EPA estimates lifetime cancer risks from dioxin exposure to vary between 1 in 1,000 to 1 in 10,000. Dioxin is also an endocrine disruptor.

Endocrine system

The internet of glands (thyroid, pituitary, pancreas, ovaries, and testes) that secrete chemical messengers called hormones. The endocrine internet overlaps with the immune and nervous systems.

Endocrine disruptors

(EDCs) are molecules that trigger, block or redirect the molecular chemistry of hormonal messengers. They are not necessarily toxic as materials or products. More often, the manufacture and disposal of the material causes injury. Plants and animals produce molecules that also act as endocrine disruptors. Other terms: environmental estrogens, hormone mimics, or modulators.

RETHINKING RISK ASSESSMENT

Even more troubling: the dose response curve for EDCs can go up and down in ways that confound traditional toxicology. Scientists call this a "non-monotonic dose response curve." That means EDCs can have different developmental effects at different windows of fetal development and at different doses. Extremely low doses in some developmental windows can end up causing worse effects than larger doses in other developmental windows.

One leading scientist, Frederick vom Saal, warned that these non-monotonic dose response curves are "the end of risk assessment as we know it." This alarm has government regulators and industry scientists tearing their hair out. "Risk assessment" represents the only "rational" way that government has been able to justify licensing companies to pour hazardous chemicals into the environment.

Classic risk assessment depends on dose response curves that theoretically allow scientists and regulators to assess population- or age-specific risks based on simple extrapolations of high-dose exposures. The classic experiment is to expose lab rats to a series of high doses and then extrapolate the curve downward, assuming that what you see in high doses can predict what happens at low doses. But if there is no known safe minimum dose for EDCs, and if they can have different effects at different doses and during different months of fetal development, the whole mechanism by which government licenses chemical companies to release chemicals doesn't make sense. The implications of no known safe minimum dose, for a petrochemically based global industrial system, are simply staggering.

Three additional complications have arisen: the endocrine-disrupting chemicals do not seem to be limited to a specific discrete class, the way

In short, many of us may already be "full up" of some persistent organic pollutants, including both chemicals that function as classic carcinogens and those that also function as EDCs. Millions of American people may carry in their bodies, right now, the levels of these chemicals at which, in other animal populations, scientists have seen pathological effects.

NON-HUMAN INDICATORS

EDC negative effects are far better demonstrated now in wildlife and experimental animals than humans. Industry scientists insist that we cannot generalize from animal effects to human effects. Yet some ecologists and physiologists counter that the endocrine system is quite similar across vertebrate species, involving the same principles and the same hormones. A growing number of independent scientists believe that the capacity to generalize concerns about EDCs across vertebrate species, including humans, is reasonable.

Since it is so difficult to conduct conclusive tests of EDCs on humans, and since so many human diseases do not have known benchmarks for incidence levels, *Our Stolen Future* (see review p. 80) suggests evaluating human health risks by a rough analogy: "If we know potential EDCs have specific serious health effects on animals, and we believe that the same effects might also occur in humans, what health problems would we look for in humans to see if they are increasing?" The expected health problems would include testicular cancer, endometriosis, intersex births, undescended testes, decreased fertility, learning and behavioral disorders, decreased resilience to stress, immune disorders, and neurological disorders. For a few conditions where we do have good benchmarks, notably testicular cancer, the statistical increase leads us to real concern. Clinical and anecdotal evidence has begun to confirm increased incidence of other health problems.

Metta for Monsanto

Gary Cohen

May all beings be free from suffering
 May all beings make peace with the Earth
 May all beings be happy

May all beings that carry PCBs in their bodies
 be free from disease

May all mothers, everywhere on the planet, that pass PCBs to their children
 through their breast milk, be free from guilt and rage

May all Monsanto employees who produced PCBs with
 knowledge of its health effects be forgiven

May all Southeast Asians and American veterans that carry
 Agent Orange in their bodies be free from disease

May all children born with birth defects due to their
 parents' exposure lead fruitful lives

May all Monsanto employees who produced Agent Orange be forgiven

May all beings that carry dioxin in their bodies
 be free from disease

May all mothers, everywhere on the planet, that pass dioxin to their children
 through their breast milk, be free from guilt and rage

May all Monsanto employees who falsified studies to hide the health impacts of
 dioxin be forgiven

May all cows receiving synthetic hormone injections to increase their
 milk supply be free from disease

May all children drinking genetically engineered milk be free from disease

May all Monsanto employees who downplay the health impacts of this technology
 and deny the public's right to know awaken from their ignorance

May all beings living near Monsanto's factories and being poisoned
 be free from suffering

May all workers in Monsanto's factories exposed to chemicals
 be free from disease

May all Monsanto employees who remain shielded from these truths
 come to awareness

Oh Great Mother who brings immediate realization

May compassion and wisdom grow in our hearts,

A luminous lake of awareness,

Giving happiness to all beings

Oh Great Mother, be with us

Teach us always to be hopeful gardeners of the spirit

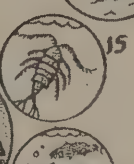
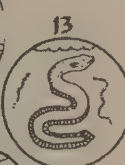
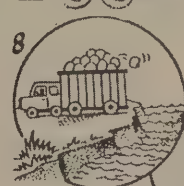
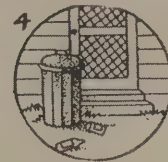
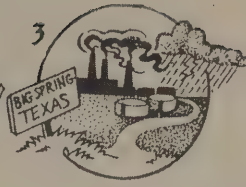
Who know that without darkness

Nothing comes to birth*

May all beings be free from suffering

May all beings make peace with the Earth

May all beings be happy.



This path traces the journey of a PCB molecule from its origin in a factory in Alabama to a refinery in Texas and up the food web in the Great Lakes and North Atlantic regions. The concentration of persistent chemicals can be magnified millions of times and they travel to the ends of the earth. — Our Stolen Future (see p. 80).

Note: Metta means loving-kindness in Buddhist philosophy.

*This stanza is authored by May Sarton.

HOPE AND PUBLIC HEALTH

Hope, the Czech playwright and statesman Vaclav Havel says, is different from optimism. It is an orientation of the human soul, and can spring forth within us even at the darkest times. At Commonweal, for many years, my coworkers and I have worked with adults with cancer and children with learning and behavior disorders. Both

Persistent Organic Pollutants

(POPs) are molecules of carbon rings and hydrogen. Many POPs contain chlorine. They are molecules that are not easily broken down into harmless molecules and often their impacts magnify as they accumulate within food webs and individual organisms. They can cause cancer, DNA damage or endocrine disruption.

Plasticizer

In the lingo of chemical engineers, a "flexibilizer." A molecule that gives an otherwise rigid material flexibility.

PVC

Polyvinyl chloride is a molecule consisting of hydrogen, carbon, and chlorine. It is a resin used to make soft flexible films such as medical tubing, as well as rigid products (e.g., pipes). During the manufacture, incineration and, for some products, use of PVC, dioxin, and dioxin-like molecules are released into the environment.

MAJOR SOURCES OF DIOXIN AND DIOXIN-LIKE COMPOUNDS IN THE US, 1994

Dioxin Source	Dioxin releases (grams) per yr	
	Median Est	Range
Medical waste incinerators	5100	1600-16,000
Municipal waste incinerators	4800	2110-10,700
Hazardous waste incinerators/ cement kilns	409	120-1200
Pulp mills	363	256-504
Wood burning	360	113-1063
Secondary copper smelters	230	74-740
Vehicle fuel combustion	86	27-274
Forest fires	86	27-270
Sewage sludge incineration	23	10-52
Secondary lead smelt/refine	1.6	0.7-3.5
Chemical manufacturing	NA	NA

Source: Environmental Protection Agency

According to more recent estimates, municipal waste incinerators may emit more than medical. Medical incineration remains, at least, the second largest emitter.

cancer and learning disabilities are epidemic in our time. Many scientists now suspect that EDCs may have a good deal to do with both epidemics.

These modern epidemics are deeply painful to all who suffer from them. I have listened to too many young mothers facing metastatic breast cancer, too many families agonized by dealing with learning disabilities, and too many friends seared by endometriosis and autoimmune diseases to accept this as just another horror story.

Historically, when health-affected people and their health professionals understood the threat

of nuclear tests and smoking, we began to get action on those threats. What we have done as a first step is to challenge the silence and help start a national campaign, called Health Care without Harm, to get health professionals and health-affected lay people involved in warning the public about EDCs. We have started by trying to right a grievous wrong which is that the American healthcare system is one of the primary sources of public (and fetal) exposure to dioxin.

While we work with Health Care without Harm, other activists are working on a dozen other major sources of exposure to EDCs and other toxic fetal contaminants (see "Yellow Pages," p. 84). For the simple truth is that what is required to deal with EDCs is nothing less than a global environmental public health revolution, a fundamental transformation of the petrochemical backbone of modern industrial society.

Perhaps the most basic principle of that environmental public health revolution will be a precautionary principle: no synthetic chemical can be released into the environment until we are certain it is safe for mothers, babies, and all living beings.

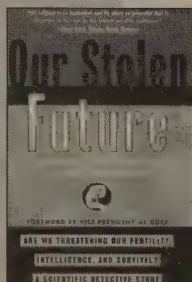
I believe that as people begin to understand the true EDC threat to the health of our families a global movement toward an environmental public health revolution like the nineteenth century public health revolution that controlled infectious disease with public hygiene is possible, and may even be inevitable. You don't have to be optimistic about our chances to make toxic-free babies and toxic-free bodies a human right. Ending slavery once seemed hopeless too. All you need is to hold hope as an orientation of your soul. Win or lose, fighting for the basic integrity of all life born of mothers seems to me to be the most interesting way to live. ☺

Our Stolen Future

(Are We Threatening Our Fertility, Intelligence, and Survival? — A Scientific Detective Story)

Theo Colborn, Dianne Dumanoski, and John Peterson Myers. 1996; 316 pp., \$13.95. Plume Books. www.osf-facts.org.

This is the Bible of the new world-wide toxics movement being drawn together by the unprecedented threat of endocrine-disrupting chemicals (EDCs). —Michael Lerner



“Taken together, the evidence in the Great Lakes suggested the females were nesting together because of a shortage of males, which might be absent because they were disinterested in mating or incapable of reproducing. . . . Fox and others had noticed other behavioral abnormalities as well, particularly in birds that had high levels of chemical contamination. In Lake Ontario colonies, the birds showed aberrant parenting behavior, including less inclination to defend their nests or sit on their eggs. In unsuccessful

nests, the incubating eggs were unattended for three times as long as in the nests where birds successfully produced offspring.

What Colborn remembered afterward about the conversation was how cautious they had all been. Despite the shared view that wildlife findings had implications for humans, no one wanted to acknowledge the unspoken question hanging in the air. No one dared ask whether synthetic chemicals might be having similar disrupting effects on human behavior. Those were treacherous waters they all preferred to avoid.

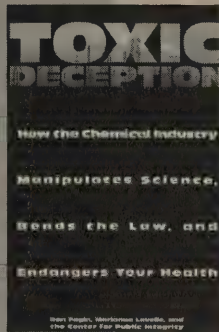
Toxic Deception

(How the Chemical Industry Manipulates Science, Bends the Law and Endangers Your Health)

Dan Fagin, Marianne Lavelle, and the Center of Public Integrity. Birch Lane Press, 1996; 293 pp. \$24.95.

Chemical companies fight for their lives in the regulation and public perception arenas. Sometimes they fight dirty: practice pseudo-science, manipulate research results, create Astroturf (phony "grass-roots") groups, co-opt academic researchers, discredit independent studies, tempt regulators with revolving-door jobs. When the cheaters succeed, dangerous products and by-products enter our food chains, air, and water. **Toxic Deception** is a beacon illuminating murky practices. —MKS

See also **Toxic Sludge Is Good for You** by John Stauber and Sheldon Rampton (1995, \$16.95, Common Courage Press) for a brilliant review of how corporate public relations "spins" science and journalism. —Michael Lerner



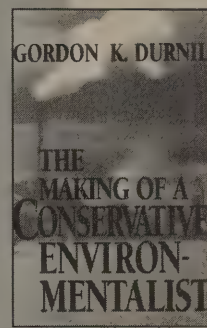
“Chemical companies have the leverage to dominate research even with relatively small grants. “Our universities are like a limousine with a well-trained chauffeur,” Kent Crookston, who heads the department of agronomy at the University of Minnesota, says. “We have the limo and the chauffeur, but no gas money. When someone comes along with a little gas, they determine where we drive for a few thousand bucks.” —TOXIC DECEPTION

“Kelly and Jackson did not like what they saw when they looked at the maps that showed which Iowa wells, lakes and rivers Monsanto was sampling as part of its nationwide studies. “It was not really an objective type of study,” Jackson recalls. In Fayette County, he said, Monsanto was sampling deep wells in clay soils where herbicides were unlikely to turn up, instead of shallow wells in sandy soils where they were common. Kelly looked at all the sampling sites in Iowa and came to the same conclusion. —TOXIC DECEPTION

The Making of an Environmental Conservative

Gordon K. Durnil. Indiana University Press, 1995; 200 pp. \$19.95.

Indiana Republican chairman Gordon Durnil was named by George Bush as US chair of the International Joint Commission responsible for the Great Lakes. He became, he says, an “environmental conservative” dedicated to the principle that preventing toxic pollution is more cost-effective than managing it. He discovered the need for a zero-toxics discharge goal for the Great Lakes and for a drastic reconsideration of products made from chlorinated organic molecules. He forged an environmental philosophy which, if widely adopted by other conservatives, could be vital to our health and environment. Who else has book-jacket quotes from Dan Quayle and Greenpeace’s Jack Weinberg? —Michael Lerner



“We conservatives preach out against the decline of learning in our schools, the increased incidence of juvenile crime; we worry about abnormal sexual practices and the lack of respect that young people now seem to have for the property and person of others. Should there be evidence [as there is] that some of these things are being caused [again, to whatever degree] by chemicals tested and untested flowing into our environment, should we not add that concern to our litany of concerns? Yes, I think so. We preach self-reliance, but what if, unbeknownst to us, mysterious chemicals are affecting our ability to be reliant on ourselves?

“Conservatives want lower taxes. Conservatives want smaller government, with fewer regulations and regulators. Pollution prevention, instead of all the high-cost bureaucratic mandates and regulatory harassment at the tail end of the pollution trail, can achieve these conservative purposes. If you don’t make an onerous substance in the first place, you don’t later need to regulate it, you need regulators or the increased taxes and fees to pay their expenses.

would in the end stand for the truth. Or, if they found themselves unable to do that, to end the case by saying they couldn’t answer the questions based on evidence. — A CIVIL ACTION

“People are poor in the South, and you know you’re poor when you have the best geology. Then you just become nothin’ but a glorified catbox! —UPROAR AT DANCING RABBIT CREEK

A Civil Action

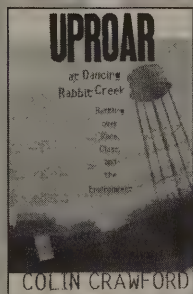
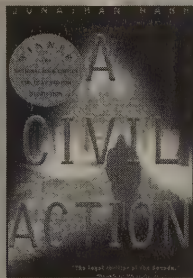
Jonathan Harr. Vintage Books/Random House, 1996; 502 pp. \$13.00.

Uproar at Dancing Rabbit Creek:

Colin Crawford. Addison-Wesley Publishing Co., 1996; 410 pp. \$23.

Two engrossing books about how we handle toxic waste, and about the machinery of injustice: how people (and which people) get hurt.

Civil Action tells of families in Woburn, Massachusetts discovering what they didn’t know they shared: abnormally high rates of cancers (especially among children), other illnesses, and birth defects. What they knew they shared was the terrible taste and appearance of their drinking water. They filed a civil suit against two corporations (Beatrice and W.R. Grace) who operated nearby plants that the families believed had contaminated the water with toxic chemicals. The book explores important issues about judicial proof and its relationship to truth. Despite an out-of-court monetary settlement by one of the companies, the battle in court was essentially lost — neither company was held accountable.



Uproar tells how Noxubee County, Mississippi, overwhelmingly African-American and exceedingly poor, became the proposed site for a toxic waste dump large enough to serve the nation. The book’s strength and weakness both lie in its intricate, almost excruciating detail — filled with unlikely and uneasy allies and opponents, strong personalities and, above all, the past’s hold on people. As Faulkner famously observed, “The past is never dead. It’s not even past.”

It’s a measure of Noxubee’s poverty that the dump plans nearly succeeded. At the eleventh hour, a fragile coalition of blacks, whites and Native Americans emerged to stop the dump’s permitting. For now. —Lexi Rome

“In truth, these questions were all but impossible to understand. An expert in semantics would have had a hard time finding his way through the thicket of words. But even worse, they asked for answers that were essentially unknowable. Science could not determine the moment when those chemicals had arrived at the wells with the sort of precision Judge Skinner was demanding of the jurors. The judge was, in effect, asking the jurors to create a fiction that

Hospitals That Poison

Lexi Rome
& Peter
Warshall

“**F**irst do no harm” is a fundamental tenet of the Hippocratic oath. So how do we come to grips with the astonishing revelation that the health care industry itself emits nearly half the known dioxin and dioxin-like compounds, as well as a quarter of the mercury, released into the American environment?

Where does your hospital “waste” wind up? The left-over blood and drained internal fluids, the IV bags and gloves; microbial cultures, body parts, scraped tissues; “sharps” like needles, scalpels and lancets; experimental animal carcasses (some with

radio-isotopes); food rejects; hankies and sheets from communicable disease; mercury from thermometers, blood pressure gauges, and batteries; AND all the stuff made from chlorinated plastics.

In hospitals, infectious wastes, pathological wastes and chlorinated plastic wastes are unique and intimately meshed with public

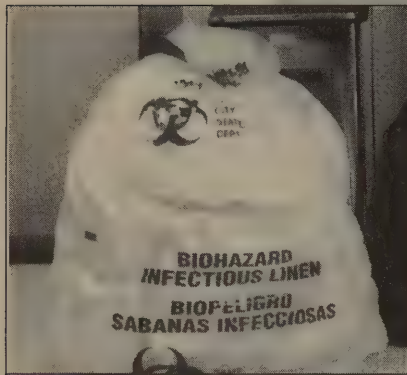
health. Most hospital waste requiring aggressive treatment cannot be recovered or recycled. Re-use requires extraordinary care and monitoring. To avoid the vengeance of improperly disposed-of med-waste, hospitals need to adopt and custom-modify a twenty-five-year-old American tradition of household awareness: segregate plastic/paper and organic wastes; use biodegradable waste bags; deconsume.

Ask your hospital’s administration if it keeps parts or carcasses with radio-isotopes for eight half-lives before burning. If not, it could be adding radioactive ash to the neighborhood. Or, ask the administration how it bags or wraps the unwanted

flesh. If it bags with materials made from chlorinated plastics, the hospital incinerator will emit dioxin and dioxin-like compounds.

Since HIV, hospitals have become super-careful about sharps and contact with bodily fluids. No more syringe needles sticking out through the garbage bag. Ironically, this important prevention project led to an unintentional risk increase. Many of the throwaways (especially flexible plastics like gloves or tubes) have been made from extruded chlorinated plastics. Tossed into an unseparated waste heap, then burned, they release carcinogens and endocrine disruptors. According to the Centers for Disease Control, only about two percent of the total hospital waste stream must be burned. Yet, hospitals continue wholesale incineration of all waste. Recent emissions measurements stimulated health care practitioners to think about in-hospital use. They found that some polyvinyl chloride (PVC) tubing employed in long-term care (e.g., kidney dialysis) actually leach toxic molecules into the tube’s liquids, then into the patient. In these cases, both use and disposal cause harm, not health.

Changing from incineration to shredding with disinfection, or to autoclaving or to microwaving has encountered formidable barriers. Resistance is tied to the fixed capital invested in incinerators. Investors hardly want incinerators declared obsolete before they are paid off or turn a profit. The labor cost (time) of sorting out chlorinated plastics in the hospitals riles accountants and confuses normal procedures. Hauling and landfill charges are rising and burial space may be hard to find. In the short term (next five years), the best move is dispensing with PVC products altogether and purchasing non-chlorinated substitutes. Like other shifts in consciousness, health care without harm creates new markets and businesses for the innovative and caring, and leaves behind those who place financial return over the value of injuring our persons. ☉



Health Care without Harm

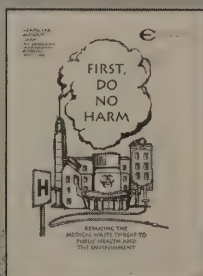
First, Do No Harm

The Campaign for Environmentally Responsible Health Care. 1997; 62 pp. \$20. c/o CCHW, PO Box 6806, Falls Church, VA 22004; 703/237-2249, cchw@essential.org

Health Care Without Harm, the nation-wide coalition, has educated, organized, and inspired a revisioning of the health care industry. Their goals include phasing out use of mercury, PVC, and persistent toxic chemicals in the healthcare industry and

building momentum for a broader phaseout; eliminating non-essential incineration of medical waste; developing health-based standards for medical waste management; and siting and transport guidelines conforming to principles of environmental justice.

HCWH launched its campaign in March, 1997 with **First, Do No Harm**. This carefully researched overview incorporates medical, scientific, and economic research to show how the healthcare industry can take the lead in the coming environmental healthcare revolution—and improve its bottom line at the same time. —Lexi Rome



“Red bag waste (potentially infectious material) haulage is five times more expensive than non-regulated (regular solid) waste. Through proper placement of red bags, education; signage, monitoring and maintenance, generation of red bags can be reduced by controlling the non-regulated wastes (food, flowers, packaging) that end up in the red bags. Through this process, Beth Israel reduced their generation of red bags by 1,000,000 pounds per year, decreasing waste haulage fees by \$600,000 per year.

An Ounce of Prevention

Plastics That Heal

YELLOW PAGES

An Ounce of Prevention (Waste Reduction Strategies for Health Care Facilities)

Connie Leach Bisson, Glenn McRae, and Hollie Gusky Shaner. American Society for Healthcare Environmental Services (ASHES) of the American Hospital Association, 1993; 220 pp. \$50.

Guidebook for Hospital Waste Reduction Planning and Program Implementation

Glenn McRae and Hollie Shaner. ASHES, 1996; 105 pp. \$49.95.

Waste Management for Health Care Facilities (with Supplement).

Linda Lee et al., American Society for Hospital Engineering (ASHE) of the American Hospital Association, 1992; 300 pp., \$110.

Preventable Poisons (A Prescription for Reducing Medical Waste in Massachusetts)

Greater Boston Physicians for Social Responsibility and the Toxics Action Center, 1997; \$5. Toxics Action Center 29 Temple Place, Boston, MA 02111.

This elegant and incisive report from Boston scientists and activists documents the 90 million pounds of mixed medical waste and 15 million

We know we need to rid the medical waste stream of toxic substances, so the obvious next question becomes: what can institutions do about it? It's one thing to agree in principle; it's quite another to actually begin the transition.

Fortunately, the wheel has already been invented.

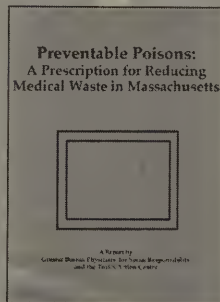
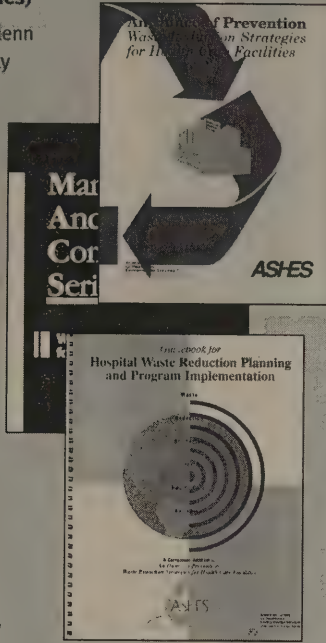
These three volumes are technical, how-to manuals written for hospital managers faced with implementing cost-effective "green" policies. Creative examples and step-by-step action plans from the real world are cited throughout.

These guides do not address dioxin, but they can be a tremendous resource to ridding the medical waste stream of toxics. The good news is that after the initial outlay of resources, aggressive and responsible waste management

easily pays for itself. These volumes leave no reason for healthcare institutions not to undertake this important work.

—Davis Baltz

pounds of pathological waste that Massachusetts creates annually. Of forty-six medical waste incinerators operating in the state, twenty-nine do not have any pollution controls designed to take out the dioxin and mercury. Those that do have controls sometimes go more than three years without inspection. The report also demonstrates how much more medical waste is being incinerated than needs to be. —Michael Lerner



Major chemical companies have invested millions of dollars developing plastic resins that can be substituted for PVC in medical products. Among the first targets for replacement are high-volume disposables such as IV bags, fluid collection bags, and tubing. The new resins have physical properties that can match PVC's flexibility, strength, and puncture resistance, and are still significantly less dense and lighter in weight, reducing environmental impact during production and disposal.

What they don't have is chlorine, and therefore almost no emission of dioxins during manufacture or incineration. There are no additives or plasticizers. They offer options which deliver quality patient care while also protecting environmental quality.

—Bob Eleff

The Contenders

McGaw, Inc.

Irvine, CA; 800/624-2963.

IV bags: resin is polypropylene/ethylene blend; containers for irrigation/urology solutions; 3-in-1 mixing containers made from ethylene vinyl acetate (EVA).

Dow Plastics

Midland, MI; 800/441-

4369. Film for collection bags: resin is a polyolefin plastomer.

Cryovac North America.

Duncan, SC; 864/433-2000. Film for IV bags; port tubing

for IV bags (currently sold to bag manufacturers in Europe and Asia).

Rexene Corporation

Dallas, TX;

888/739-3539.

Film for dialysis

bags: polyolefin bags 40 percent less dense and 60 percent lighter than PVC.

Kendall Healthcare Products

Mansfield, MA; 800/962-

9888. Sequential compression

device (squeezes

patient's legs to prevent

clotting) made with material

from Exxon Chemical and

DuPont Dow elastomers;

the device is 70 percent

stronger, 30 percent less

dense and 25 percent

lighter than PVC product.

Norton Performance Plastics Corp.

Akron, OH; 330/798-

9240. Tubing, made from

Dupont Dow ENGAGE, fea-

tures low absorption/

adsorption and high chemi-

cal resistance.

Dravon Medical Inc.

Clackamas, OR; 503/656-

6600, and CharterMed:

Lakewood, NJ; 908/901-

9400. IV bags: both compa-

nies make their bags from

EVA produced by Solvay

Industrial Films.

Medsep Corp

Covina, CA; 818/339-

7388. Plasma collection

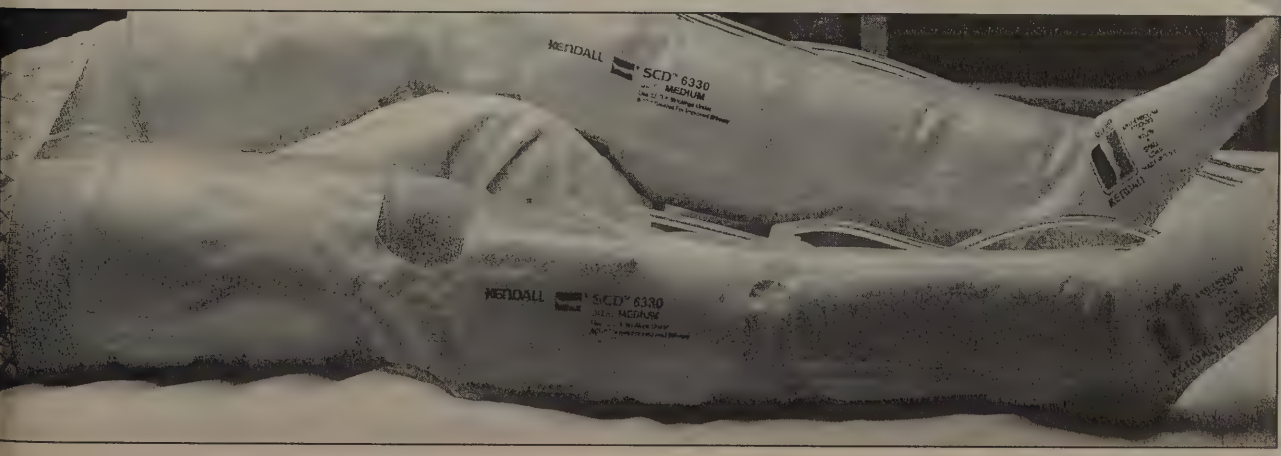
bags made from EVA resin

produced by Ellay Inc.; bags

are cold tolerant and strong

when frozen.

85



Kendall Healthcare's PVC-free Green Sleeve.

Persistent Organic Pollutants and Endocrine Disruptors

YELLOW PAGES

Davis Baltz
and Whole
Earth Staff

Dying from Dioxin

(A Citizen's Guide to Reclaiming Our Health and Rebuilding Democracy)

Lois Marie Gibbs and the Citizens Clearinghouse for Hazardous Waste.

1995; 361 pp. South End Press, \$20.

Lessons and strategies from the former Love Canal, NY housewife who founded Citizens Clearing House for Hazardous Waste (CCHW). The first half describes how dioxin is destroying our health. The second half tells how to stop the poisoning.

—Davis Baltz



Publications

Environmental Health Perspectives

Research Triangle Park, NC; 919/541-3406. \$100/year, monthly, \$157/year on web.

Look here first for new research.

Greenpeace Reports

Washington, DC; 800/326-0959.

Attention to Greenpeace's high-profile "actions" often obscures the high quality of much of their scientific research and their powerful and well-written reports. Many can be downloaded at www.greenpeace.org. Recent titles include "Chlorine & Dioxin: The Burning Question" (1997), "The PVC Lifecycle: Dioxin from Cradle to Grave" (1997), "Taking Back Our Stolen Future: Hormone Disruption and PVC Plastic" (1996).

Infectious Waste News

Washington, DC; 202/244-4700. \$295/year, biweekly.

Industry medwaste newsletter keeps you informed.

Journal of Pesticide Reform

Eugene, OR; 541/344-5044. \$25/year, quarterly.

Research and activism together.

"Prevention of Dioxin Generation from PVC Plastic Use by Health Care Facilities"

(American Public Health Association Resolution # 9607). Attn: Glenda Johnson, APHA, 1015-15th Street NW, Washington, DC.

Rachel's Environment and Health Weekly

Annapolis, MD; 410/263-1584. \$25/year, weekly. If you read only one publication, this is a good choice. Available online via EcoNet (see below) at toxics.rachel.

Waste Not

(The Weekly Reporter for Rational Resource Management). Canton NY; 315/379-9200. \$40/year, weekly.

Reports and comments on how to manage waste environmentally.

Internet Resources

Chlorine Monitor

Institute for Agriculture and Trade Policy (IATP). To subscribe, send email to: majordomo@igc.apc.org. Leave the subject line blank. In the message body say: subscribe: chlorine-news.

"Endocrine Disruptors" by Carolyn J. Strange. See www.libertytree.org.

Excellent background information and web links to resources and activists (both industry and NGO).

EcoNet

Related conferences include haz.forum, haz.incinerate, haz.pesticides, haz.phase-out, env.justice. To join EcoNet, see www.igc.org/igc/.

Our Stolen Future

www.osf.org. Regularly updated with new studies and information.

Organizations Working on Issues of Persistent Organic Pollutants

CCHW Center for Health, Environment and Justice

(formerly Citizens Clearinghouse for Hazardous Waste). Falls Church, VA; 703/237-2249.

Children's Environmental Health Network

Emeryville, CA; 510/450-3818.

Environmental Protection Agency

Washington, DC; 202/260-1023.

Greenpeace

Washington, DC; 202/319-2433.

Intergovernmental Forum on Chemical Safety (IFCS)

c/o World Health Organization, Geneva, Switzerland ifcs@who.ch.

Mothers and Others for a Livable Planet

New York, NY and San Francisco, CA; 888/326-4636; from outside US, 212/242-0010.

Pesticide Action Network

San Francisco, CA; 415/541-9140.

Science and Environmental Health Network

Windsor, ND; 701/763-6286.

Toxic Links Coalition

San Francisco Bay Area; 510/548-9286.

World Resources Institute

Washington, DC; 202/662-3771.

Chief Members of the Health Care Without Harm Coalition

National Coordinator: CCHW Center for Health, Environment and Justice, (see above).

Action for Women's Health, Albuquerque, NM; AFL-CIO, Washington, DC; Beth Israel Health Care System, New York, NY; The Breast Cancer Fund, San Francisco, CA; California Communities Against Toxics, West Rosamond, CA; Center for the Biology of Natural Systems, Flushing, NY; Clean North, Sault Ste. Marie, Ont.; CGH Environmental Strategies, Burlington, VT; Commonwealth, Bolinas, CA; Ecology Center of Ann

Arbor, Ann Arbor, MI; Environmental Working Group, Washington, DC; Greenpeace, Chicago, IL; Human Action Community Organization, Harvey, IL; Indigenous Environmental Network, Hackensack, MN; Institute for Agriculture and Trade Policy, Minneapolis, MN; Learning Alliance, Jamaica Plain, MA; Minnesota Center for Environmental Advocacy, St. Paul, MN; Physicians for Social Responsibility, Boston, MA, Chicago, IL, New York, NY, San Francisco, CA, Washington, DC; South Bronx Clean Air Coalition, Bronx, NY; Toxics Action Center, Boston, MA; Washington Toxics Coalition, Seattle, WA.



Port Arthur, Texas
—Dying from Dioxin.

Industry Organizations

American Crop Protection Association
Washington, DC
202/296-1585.

Chemical Manufacturers Association
Arlington, VA
703/741-5000.

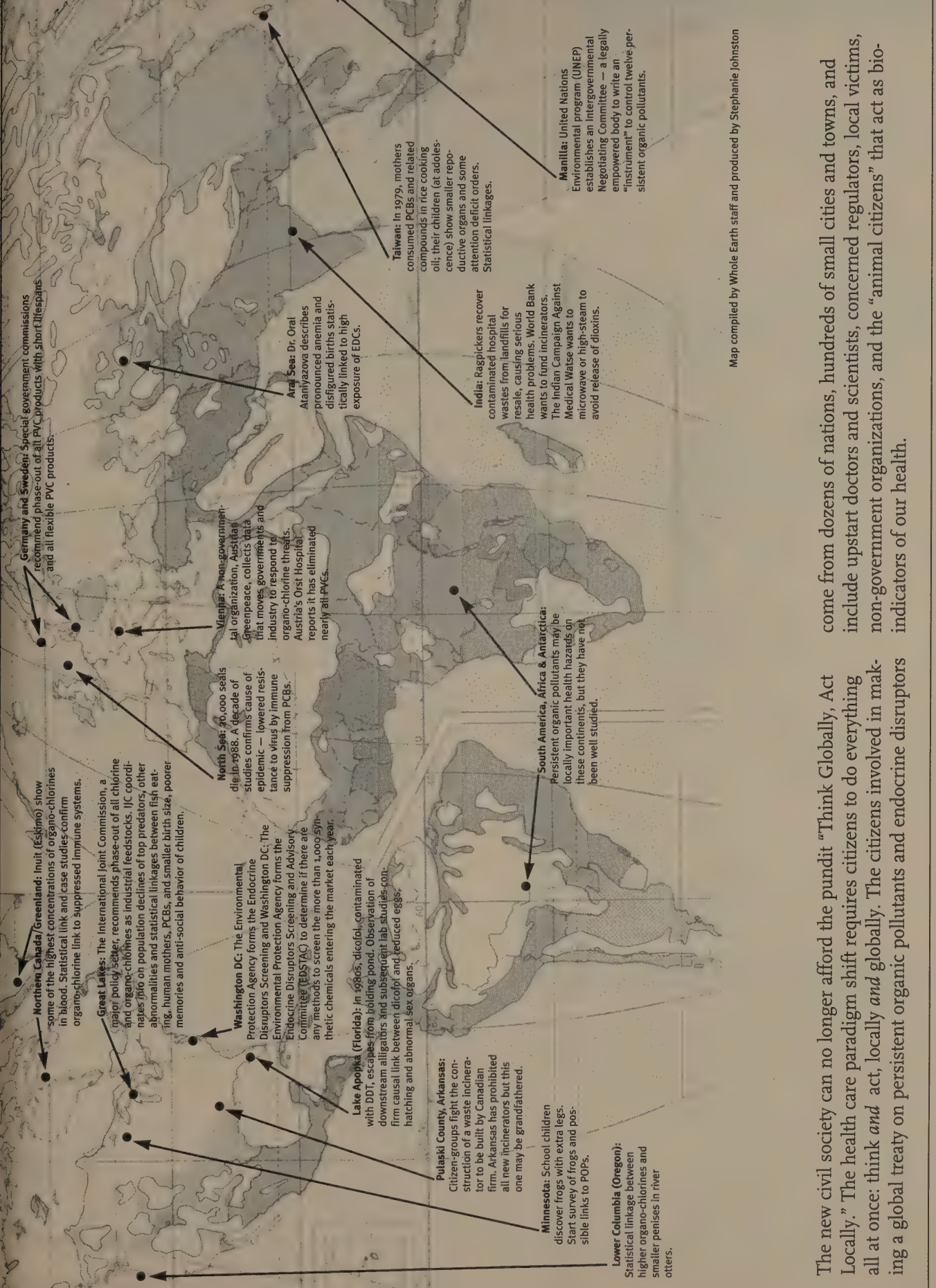
Chlorine Chemistry Council
info@cc3.org.

Chlorine Institute, Inc.
Washington, DC
202/775-2790.

European Chemical Industry Council
Brussels, Belgium
www.cefic.be/.

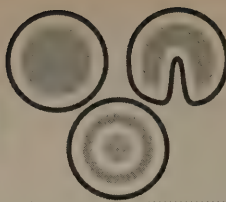
Global Crop Protection Association
Brussels, Belgium
32-2-542-0410.

World Chlorine Council
c/o Chlorine Chemistry Council (see above).



Map compiled by Whole Earth staff and produced by Stephanie Johnston

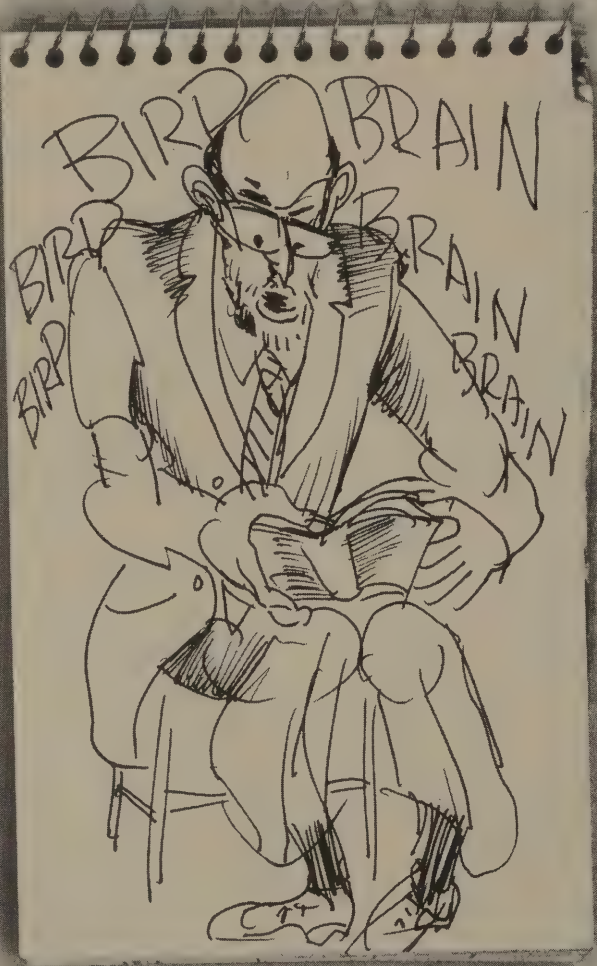
The new civil society can no longer afford the pundit "Think Globally, Act Locally." The health care paradigm shift requires citizens to do everything all at once: think *and* act, locally *and* globally. The citizens involved in making a global treaty on persistent organic pollutants and endocrine disruptors come from dozens of nations, hundreds of small cities and towns, and include upstart doctors and scientists, concerned regulators, local victims, non-government organizations, and the "animal citizens" that act as bio-indicators of our health.



Heart and imagination. Vividness, candor. Tools for renewal — wandering, rafting, sweet lips, emptying mind, non-ordinary experiences. The practice of bardic voice, music and song, dance and festival. Humans as tragi-comic history. Timelessness in many universes.

Mind Writing: Exercises in Poetic Candor

Allen Ginsberg



KEN BOTTO

86

Exercise 1. After 5 minute meditation.

List thoughts chronologically (Recollection of thoughts during meditation): write down in sequence the main external perceptions and internal ruminations or chains of thought that passed thru your head.

"First Thought, Best Thought"[1]*

"Take a Friendly Attitude toward your thoughts."[2.]

"Notice What You Notice."[15]

Specimens: Ashberry "Instruction Manual"
Snyder "Bubb's Creek Haircut"
Allen Ginsberg "Mind Breaths"

* Numbers in brackets refer to "Mindwriting Slogans," p. 88

Exercise 2. Heaven Earth Man Haiku Look At

1 Minute Meditation Outside Class: Heaven or Sky

1 Minute Meditation Outside Class: Earth or Ground

1 Minute Meditation On Seat: Human, In your Head

Then write 3 part poem, 3 short verses

3 Part Short Poem

Waking from thoughts (Ground) (Sensation) (Heaven)

"Catch yourself Thinking"[16]

What's the situation (Path) (Recognition) (Earth forms)

"Candor"[60]

What's your reaction, comment (Fruition) (Reaction) (Man)

"Give me a for instance"[29]

"Form follows function"[12]

"Form is never more than an extension of content" [11]

Exercise 3. Extended Heaven Earth & Man, 3 line poem

One Ground — Heaven

Two Paths — Earth Forms

Three Fruitions — Man

Exercise 4. Three Line Poem

1) What's your neurotic confusion?

2) What do you really want, desire?

3) What do you notice right where you are now?

Exercise 5. Haiku

Take one vivid moment, one spot of time.

Express the details in one sentence.

Reduce it to about 17 syllables.

Example: "Put on my tie in a taxi, short of breath, rushing to meditate."

Exercise 6. Visualization Poem

3 Verses each one sketching panoramic landscape visualize each verse one breath long.

4th verses ending the quatrain — an afterthought, zigzag from nowhere, a switcheroo or capping verse.

Exercise 7. Mind Clearing Exercise: Confusion & Complexity

Simplicity in 5 verses of 21 syllables each —

Beginning with Samsaric neurotic confusion
Proceeding to simplicity & resolution of the anxiety &
confusion in last verse.

Examples:

Big Eats

Big deal bargains TV meat stock market news paper
head lines love life Metropolis
Float thru air like thought forms float thru the skull,
check the headlines catch the boyish ass that walks
Before you fall in bed blood sugar high blood pressure
lower, lower, your lips grow cold.
Sooner or later let go what you loved hated or shrugged
off, you walk in the park
You look at the sky, sit on a pillow, count up the stars
in your head, get up and eat.

August 20, 1991

Not Dead Yet

Huffing puffing upstairs downstairs telephone
office mail checks secretary revolt —
The Soviet Legislative Communist bloc
inspired Gorbachev's wife and Yeltsin
to shut up in terror or stand on a tank
in front of White House denouncing Putschists —
September breezes sway branches & leaves in
a calm schoolyard under humid grey sky,
Drink your decaf Ginsberg old communist *New*
York Times addict, be glad you're not Trotsky.

September 16, 1991

Exercise 8. Word Oxymoron juxtapositions: Re "Surprise Mind"

Take a 2-3 syllable word, write it down the center of the page
10 times, then conjoin it on either side with an opposite, an oxy-
moronic pairing, like "Nazi Milk",

"Hydrogen Jukebox", "Fried Shoes", "Animal Shoes",
"Elephant Jello", "Electric Meat", "Microphone Saliva",
i.e. word associations with a key word.

Of the list of 20 put :

3 stars for 3 best

1 star more for two best

1 star more for best best — i.e. 3 stars for the top banana

Take class vote among choice of the 3 best, compare with
subjective choice of the poet.

Exercise 9. From above, form 17 syllable American Sentence
(regular subject verb object) from favorite oxymoronic phrase. As:

"Bearded robots drink from Uranium coffee cups on Saturn's
ring"

"The next speaker got nauseous swallowing Hitler's *micro-*
phone saliva."

"The midget albino entered the hairy limousine to peepee."

"German farmers produced many tons of Nazi milk for the
Fuhrer."

Exercise 10. Top ten epiphanous moments of lifetime:

"Spots of Time", most vivid recollections since childhood.

Ordinary Mind includes eternal perceptions. [13]

Notice what you notice. [15]

Observe what's vivid. [17]

Vividness is self-selecting. [18]

Catch yourself thinking. [16]

See Wordsworth *Prelude* Book XII, V. 208-225

"There are in our existence spots of time that with distinct
preeminence retain a renovating virtue, whence . . . our
minds are nourished and invisibly repaired . . . such
moments are scattered everywhere, taking their date from
our first childhood. I remember well that once . . ."

Also see Wordsworth *Prelude* Book XIV, V. 11-62

"A light upon the turf"

So list top ten lifetime hot moments, epiphanies, moments of
experience. Can do it newspaper style: Headline, sub-head,
lead paragraph, body of story, who, what, when, where, why.



Exercise 11. Of these top ten: Take one and write one extended
anecdotal narrative poem.

Examples: Revlikoffs family anecdotes

Marie Syrkin's "Finality"

Wordsworth's *Prelude*, Book XIV 1.11-16,

" . . . a light upon the turf"

Exercise 12. List top ten secrets you never told anybody. It may
be embarrassing moments, crises, what makes you shudder to
remember to yourself, top ten shames, or secret pleasures, minor
discoveries, etc.

If we don't show anyone we're free to write anything. [20]
 Take a friendly attitude towards your thoughts.[2]
 Vividness is self-selecting. [18]
 My mind is open to itself. [21]
 Each on his bed spoke to himself alone, making no
 sound. [21]
 also see: Atisa: "Abandon any hope of fruition"
 AG: "Immortality comes later."

Excercise 13. Of these top ten, take one, write an extended anecdotal narrative poem.

Excercise 14. List top 10 fears, recurrent bad images of suffering, that haven't yet happened.

Re: Atisa: "Always meditate on whatever provokes resentment" in "Mind Training Slogans"

Take a friendly attitude toward your thoughts.[2]

Example: A U.S.-Tibetan Guru's fear of being caught in a Dharmic financial scandal like the Xtian Jim & Tammy Bakers' personal misuse of funds.

Excercise 15. List top ten pleasurable experiences of lifetime.

Excercise 16. Of the above, take one & write an extended anecdotal narrative poem.

Excercise 17. Describe a:

Mystical experience	
Aesthetic experience	Different Names
Illuminative experience	Same
Religious experience	substance
Peak experience	
Memorable, happy, joy, moment	

by means of describing external phenomena observed at the time:

- where you were - place
- what date, season, hour of day - time
- what you saw outside of you - external coordinates
- what thought words went thru yr head (short & factual) at the time
- what thoughts went thru yr head afterwards (short & factual)

Excercise, 18.

Top ten wishes

Top ten lies

Top ten dreams

See Kenneth Koch's *Wishes Lies Dreams Handbook*

Mind Writing Excercise 19. Rhymed Blues

Take one sentence more or less ten syllables, rhyme the end word 2 times more (original rhyme echoing in your head automatically suggesting rhymes) — Then fill in the blanks between end rhymes, keeping to a regular syntax: 12 Bar Blues Form.

"Sometimes I think that you're too sweet to die
 Sometimes I think that you're too sweet to die
 Other times I think you oughta be buried alive"

— Richard "Rabbit" Brown, New Orleans, 1929

Homework Exercises:

- Stop in tracks once a day, take account of sky, ground & self, write 3 verses haiku.
- Sit 5 minutes a day, & after, re-collect your thoughts.
- Stop in middle of street or country, tum in 360° circle, write what you remember.

3/30/95

ALLEN GINSBERG

Cafe
 Bonaparte,
 Place St.
 Germain,
 Paris,
 December,
 1957



On the trail out of Ramsey Canyon, poets chatting louder than the flock of juncos, Allen sees a coati mundi. His first. Standing behind him, he appears out of place, hands dug deep in his metropolis trench coat, buckle and belt dangling, flapping his arms in his pockets as he searches the nooks and crannies for a crumb to toss. It's illegal to feed wildlife but my tongue is tied. Heroes of sweetness, purifiers of desire, angels of loving kindness, healers of anxieties, voices of bardic hope need special small waivers, especially here on Earth. *Adios amigo*, happy trails. —PW

Mindwriting Slogans



"First thought is best in Art, second in other matters."—WILLIAM BLAKE

I. GROUND (Situation, or Primary Perception)

1. "First Thought, Best Thought"
—Chögyam Trungpa (CT), Rinpoche
2. "Take a friendly attitude toward your thoughts."—CT, Rinpoche
3. "The Mind must be loose."—John Adams
4. "One perception must immediatly and directly lead to a further perception."
—Charles Olson, "Projective Verse"
5. "My writing is a picture of the mind moving."—Philip Whalen
6. Surprise Mind —Allen Ginsberg (AG)
7. "The old pond, a frog jumps in, Kerplunk!"—Basho
8. "Magic is the total delight (appreciation) of chance"—CT, Rinpoche
9. "Do I contradict myself? Very well, then I contradict myself, (I am large. I contain multitudes.)" —Walt Whitman
10. "... What quality went to form a man of achievement, especially in literature? ... Negative capability, that is, when a man is capable of being in uncertainties, mysteries, doubts, without any irritable reaching after fact & reason."—John Keats

11. "Form is never more than an extension of content." —Robert Creeley to Charles Olson
12. "Form follows function." —Frank Lloyd Wright
13. Ordinary Mind includes eternal perceptions. —AG
14. "Nothing is better for being Eternal Nor so white as the white that dies of a day." —Louis Zukofsky
15. Notice what you notice. —AG
16. Catch yourself thinking. —AG
17. Observe what's vivid. —AG
18. Vividness is self-selecting. —AG
19. "Spots of Time"—William Wordsworth
20. If we don't show anyone we're free to write anything. —AG
21. "My mind is open to itself."—Gelek Rinpoche
22. "Each on his bed spoke to himself alone, making no sound."—Charles Reznikoff

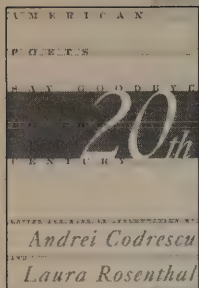
II. PATH (Method or Recognition)

23. "No ideas but in things." "... No ideas but in the Facts." —William Carlos Williams
24. "Close to the nose." —W.C. Williams
25. "Sight is where the eye hits." —Louis Zukofsky
26. "Clamp the mind down on objects."
—W.C. Williams
27. "Direct treatment of the thing..." (or object.) —E. Pound, 1912
28. "Presentation, not reference..."
—Ezra Pound
29. "Give me a for instance."—Vernacular
30. "Show not tell." —Vernacular
31. "The natural object is always the adequate symbol." —Ezra Pound
32. "Things are symbols of themselves."
—CT, Rinpoche
33. "Labor well the minute particulars, take care of the little ones
He who would do good for another must do it in minute particulars
General Good is the plea of the Scoundrel Hypocrite and Flatterer
For Art & Science cannot exist but in minutely organized particulars"
—William Blake
34. "And being old she put a skin/On everything she said."—W.B. Yeats
35. "Don't think of words when you stop but to see the picture better." —Jack Kerouac
36. "Details are the Life of Prose." —Jack Kerouac
37. Intense fragments of spoken idiom, best.—AG
38. "Economy of Words" —Ezra Pound
39. "Tailoring" —Gregory Corso
40. Maximum information, minimum number of syllables. —AG
41. Syntax condensed, sound is solid. —AG
42. Savor vowels, appreciate consonants. —AG
43. "Compose in the sequence of the musical phrase, not in sequence of a metronome." —Ezra Pound
44. "...awareness...of the tone leading of the vowels." —Ezra Pound
45. "...an attempt to approximate classical quantitative meters..." —Ezra Pound
46. "Lower limit speech, upper limit song" —Louis Zukofsky
47. "Phanopoeia, Melopoeia, Logopoeia."
—Ezra Pound
48. "Sight, Sound & Intellect." —Louis Zukofsky
49. "Only emotion objectified endures."
—Louis Zukofsky

III. FRUITION (Result or Appreciation)

50. Spiritus = Breathing = Inspiration = Unobstructed Breath
51. "Alone with the Alone" —Plotinus
52. Sunyata (Skt.) = Ku (Japanese) = emptiness
53. "What's the sound of one hand clapping?" —Zen Koan

54. "What's the face you had before you were born?" —Zen Koan
55. Vipassana (Skt.) = Clear Seeing
56. "Stop the world" —Carlos Casteneda
57. "The purpose of art is to stop time."
—Bob Dylan
58. "The unspeakable visions of the individual." —JK.
59. "I'm going to try speaking some reckless words, and I want you to try to listen recklessly." —Chuang Tzu, (Tr. Burton Watson)
60. "Candor" —Whitman
61. "One touch of nature makes the whole world kin." —Shakespeare
62. "Contact" —A Magazine, Nathaniel West & WC Williams, Eds.
63. "God Appears & God is Light
To those poor Souls who dwell in Night
But does a Human Form Display
To those who Dwell in Realms of day."
—W. Blake
64. Subject is known by what she sees. —AG
65. Others can measure their visions by what we see. —AG
66. Candor ends paranoia. —AG
67. "Willingness to be Fool."—CT, Rinpoche
68. "day & night/you're all right"—Corso
69. Tyger: "Humility is Beatness." —CT, Rinpoche & AG
70. Lion: "Surprise Mind" —CT, Rinpoche & AG
71. Garuda: "Crazy Wisdom
Outrageousness" —CT, Rinpoche
72. Dragon: "Unborn Inscrutability"
—CT, Rinpoche
73. "To be men not destroyers" —Ezra Pound
74. "Speech synchronizes mind & body."
—CT, Rinpoche
75. "The Emperor unites Heaven & Earth." —CT, Rinpoche
76. "Poets are the unacknowledged legislators of the world." —Shelley
77. "Make it new" —Ezra Pound
78. "When the mode of music changes, the walls of the city shake" —Plato
79. "Every third thought shall be my grave" —W. Shakespeare, *The Tempest*
80. "That in black ink my love may still shine bright" —W. Shakespeare, *Sonnets*
81. "Only emotion endures"—Ezra Pound
82. "Well while I'm here I'll do the work-
and what's the Work?
To ease the pain of living.
Everything else, drunken dumb
show." —AG
83. "... Kindness, sweetest of the small notes in the world's ache, most modest & gentle of the elements entered man before history and became his daily connection. Let no man tell you otherwise." —Carl Rakosi
84. "To diminish the mass of human and sentient sufferings." —Gelek Rinpoche



American Poets Say Goodbye to the 20th Century

Andrei Codrescu & Laura Rosenthal, Eds. 1996; 448 pp. \$18 (\$21.50 postpaid). Four Walls Eight Windows, 39 W. 14th Street, Rm 503, New York, NY 10011.

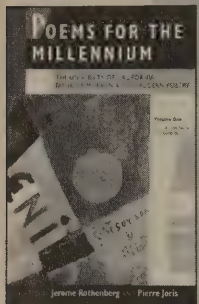
Poems for the Millennium

Jerome Rothenberg & Pierre Joris, Eds. University of California Press, 1995; 800 pp. \$24.95.

Millennial fervor makes a fetish of ordinary transpiration. Passage is time plowing under into dark ground ("the past"), with the future ("every moment") fading in and out of view. But there has never been a better time for these excellent anthologies to make the scene. And they complement each other.

I like each book for different reasons:

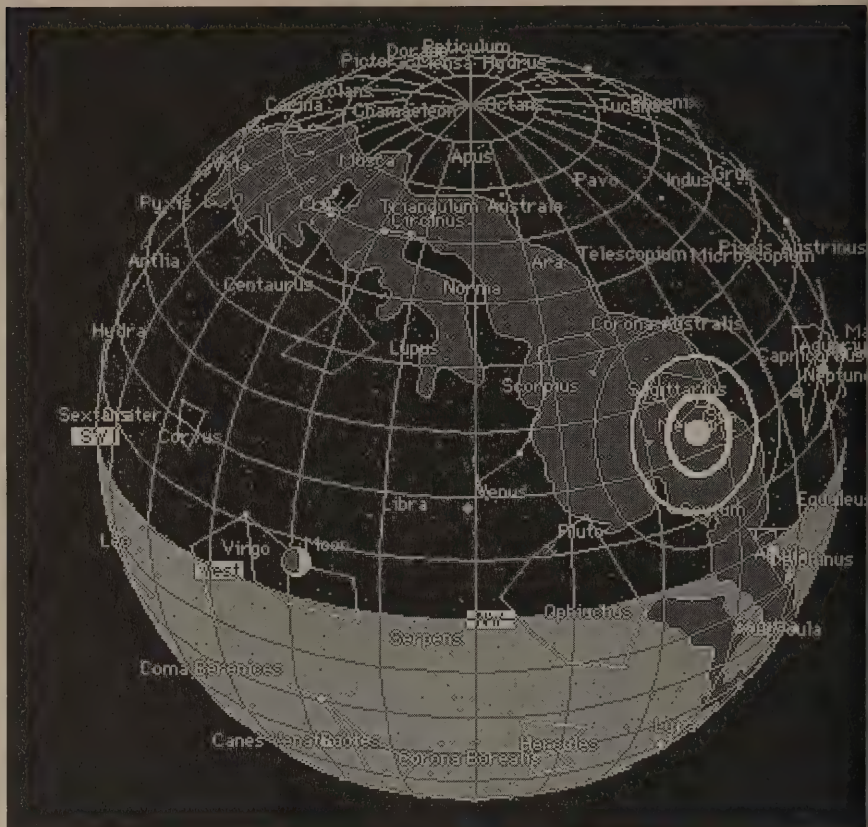
American Poets Say Goodbye to the 20th Century is a supercharged parlor game of America's best makers (more than 100). These poets speak to the bewildered, beautiful, fucked-up, horrifying, hopeful carcass of the 20th century, a celebrity roast of the age. **Poems for the Millennium** is a brilliant kaleidoscope of writing unstuck in time, both in English and in fine translation, from numerous archaic/modern/postmodern voices. It playfully and honestly rearticulates what we've known of poetics in this century. Both books are essential. —Hacsi Horvath



SUDDENLY!

The same Moon in the next century!

—Joanne Kyger, AMERICAN POETS SAY



FIRST PSALM (POSTHUMOUS)

- I. HOW TERRIFYING AT NIGHT IS THE CONVEX FACE OF THE BLACK LANDS!
- II. ABOVE THE WORLD ARE THE CLOUDS. THEY BELONG TO THE WORLD. ABOVE THE CLOUDS IS NOTHING.
- III. THE SOLITARY TREE IN A STONY FIELD HAS A STRONG FEELING OF FUTILITY. IT NEVER SAW A TREE. THERE ARE NO TREES.
- IV. I ALWAYS THINK: NOONE IS WATCHING US. HOW LEPROUS THE SINGLE STAR OF THE NIGHT IS, BEFORE IT DISAPPEARS!
- V. THE WARM WIND, BEING A CATHOLIC, IS STILL WORRIED ABOUT CONTINUITY.
- VI. I OCCUR VERY INFREQUENTLY. I HAVE NO PATIENCE. OUR POOR BROTHER THANKFUL USED TO SAY OF THIS WORLD: IT DOESN'T MATTER.
- VII. AT TREMENDOUS SPEED WE APPROACH A PLANET IN THE MILKY WAY. THE FACE OF THE EARTH IS TRULY COMPOSED. MY HEART IS TOO FAST. OTHERWISE EVERYTHING IS FINE.

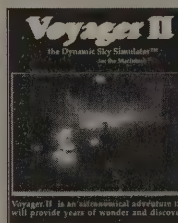
—Bertolt Brecht (1898-1956), POEMS FOR THE MILLENNIUM.

Translation from the German by Anselm Hollo.

Midnight, December 31, 1999; South Pole. Twilight rings surround sun, perceived "in" Sagittarius with Saturn. Milky Way outlined in gray. Mars and Neptune "in" Capricorn. Quarter moon "in" Virgo. —VOYAGER II screenshot.

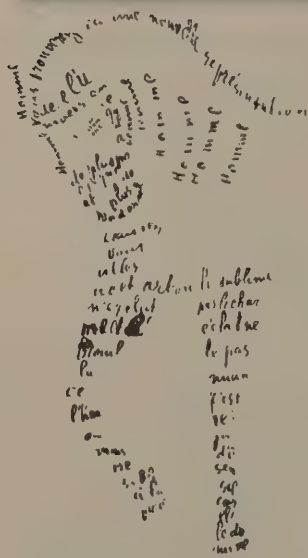
Voyager II (The Dynamic Sky Simulator)

\$159.50 (\$165.50 postpaid). Carina Software, 12919 Alcost Blvd., Suite 7, San



Ramon, CA 94583, 510/355-1266, fax 510/355-1268. See the skies in any designated direction from any point in the solar system at any time on any date over a 10,000-year span. Show the whole sky or selected phenomena, or search for objects by name or classification. The most fun of any CD-ROM we've seen. (Requires Macintosh System 7.0 or later; CD or diskette versions available.) —MKS

Horse Calligram, Guillaume Apollinaire (1880-1918). The text begins: "You will find here a new representation of the universe. The most poetic and the most modern." —POEMS FOR THE MILLENNIUM

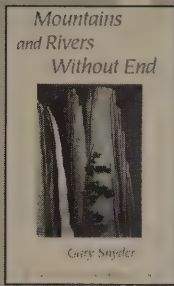


tout Ferris d'Apollinaire
Guillaume Apollinaire

Mountains and Rivers Without End

Gary Snyder. 1995; 165 pp. \$20 (\$24 postpaid). Counterpoint, 1627 I Street NW, Suite 850, Washington, DC 20006; 202/887-0363.

Forty-one years ago, inspired by a Chinese scroll painting, Gary Snyder decided to begin a long poem. He added about a section a year while hitchhiking Route 99 from Oregon to San Francisco, working on trail crews in the High Sierra, shipping out on a freighter, pursuing Zen studies and practice in Japan. "In my small spare time," he writes, "I read geology and geomorphology. I came to see the yogic implications of 'mountains' and 'rivers' as the play



between the tough spirit of willed self-discipline and the generous and loving spirit of concern for all beings."

Joining East and West, Tara and Coyote, this American epic is in the grand tradition of Ezra Pound's *Cantos* or W.C. Williams's *Patterson* — but it holds and embraces more in vision of vast bio- and cultural diversity. Who but Snyder could find the Chinese Buddhist pilgrim, Hsuan Tsang, in the Native America hump-backed flute player, Kokop'ele? Or write "New York like a sea anemone/Wide and waving in Sea of Economy"? Snyder's scholarship is far-ranging, but his sinewy verse comes directly out of the rhythms of climbing mountains and rafting rivers, endlessly. This is a poem for our time and place — a poem that sings of the whole earth.

—Rick Fields

The Hump-backed Flute Player

The hump-backed flute player walks all over. sits on the boulders around the Great Basin his hump is a pack.

Hsuan Tsang went to India 629 AD returned to China 645 with 657 sutras, images, mandala, and fifty relics— a curved frame pack with a parasol, embroidery, carving, incense censer swinging as he walked the Pamir the Tarim Turfan the Punjab the doab of Ganga and Yamuna,

Soil for Legs

- Soil for legs
- Ax for hands
- Flower for eyes
- Bird for eats
- Mushroom for nose
- Smile for mouth
- Songs for lungs
- Sweat for skin
- Wind for mid
- Just enough.

Break the Mirror

Nanao Sakaki. 1987, 1996; 138 pp. \$9.95 (\$12.95 postpaid). Blackberry Books, 617 East Neck Road, Nobleboro, ME 04555; 207/729-5083.



The statement in *WER* #87 that this fine collection of poems is out of print is now false! **Break the Mirror** is available and worth your pennies. Watch this space for Nanao's forthcoming *Let's Eat Stars*. —ET

Sweetwater, quileute, Hoh Amur, Tanana, Mackenzie, Old Man, Big Horn, Platte, the San Juan

- he carried "emptiness"
- he carried "mind only"
- vijnaptimatra



The hump-backed flute player Kokop'ele

His hump is a pack.

Comic Book Apprenticeship

What inspires young comic book artists? Another individual comic book artist. So go on pilgrimage to the Masters. Offer to cook and learn, or sweep or chauffeur and learn. Schools (unless the Masters are at the schools) turn you into an illustrator-for-hire with Marvel. —Bob Callahan

The **School of Visual Arts** and the **Joe Kubert School of Cartoon & Graphic Art** are the only schools we could find that

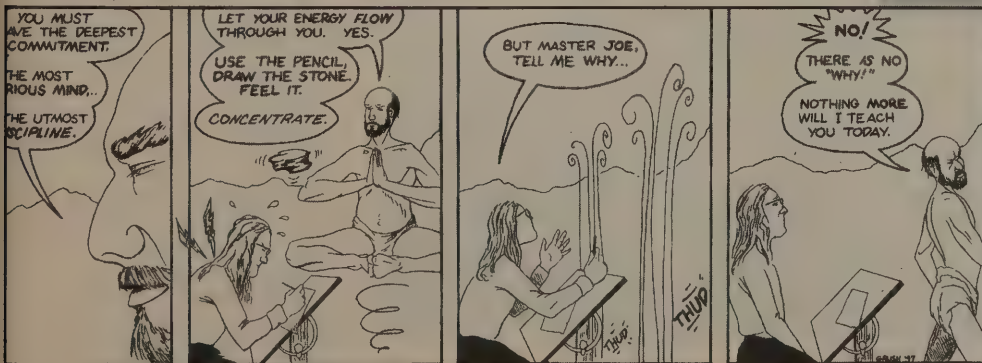
teach story lines as well as cartooning. —PW

School of Visual Arts
209 East 23rd Street, New York, NY 10010-3994; 212-592-2050. fax 212-592-2060. www.schoolofvisualarts.edu.

The Joe Kubert School of Cartoon & Graphic Art
37 Myrtle Avenue, Dover, NJ 07801; 201-361-1327, fax 201-361-1844.



THE OUTSIDER, BY RUSH KRESS



FROM TUVA TO TUPELO: An American bluesman takes throatsinging home to Central Asia

Allison Levin
& James Donnelly

In an evening's discourse with Paul Pena, you're liable to learn these things: he's been a blues musician for thirty years (and he's played with B.B. King, John Lee Hooker, and T-Bone Walker). He is blind.

He's a student of Spanish, Hawaiian, Korean, French, and Russian, though he gravitates to "wingwalker," or endangered, languages. He's a Cape Verdean-American, born on Cape Cod. And in 1995, he made his way to Tuva, in the high, arid steppes southwest of Siberia, where he trounced contestants from fourteen countries to win his division in UNESCO's International Throatsinging Competition.

If you live anywhere within earshot of NPR, you've probably heard a few minutes' worth of Tuvan throatsinging. It can sound something like a gale wind blowing over the top of a steamship's funnel, accompanied by the oscillating moan of a European ambulance siren, or like a vacuum cleaner/penny-whistle duet. Most throat music is overtone music, in which one voice pro-



vides drone or harmonics and another the melody, both emanating from a solo vocalist. As a formal musical style, throatsinging is integral to traditional Tuvan culture; almost predictably, it's an endangered

form in its own land. But the technique isn't confined to northern Central Asia; given a world full of people with music in their heads and time on their hands, varieties of overtone singing were certain to be heard elsewhere. Such as in the Mississippi Delta, the source of Paul Pena's first taste of throat music.

"One of the old blues guys from the thirties, Charlie Patton — when I first heard him it knocked me out: he'd be singing along and all of a sudden he'd talk, and you'd think it was a different guy talking. When he'd sing he did something to

his voice that changed it. The thing he did to his voice when he sang is one of the basic things you have to learn to be a skilled throatsinger."

Pena first heard Tuvan throatsinging by accident, on Radio Moscow. "December 29,

Paul Pena with
Konghar-ool
Ondar.



1984. I was going to tape my Korean lesson. I was lucky that I had the tape rolling, though I had no conception of what the music was going to come to be in my life.

"I got on this station and I thought my radio broke. In shortwave you get these oscillations, like whistles; I get on there, man, and I hear this whistling and stuff, and this is a strong station, it should come in like no problem at all. I'm just about to, Oh man, my radio's finally kicked out. I realize that the oscillations, the whistles that I'm hearing are melodies! Now it's like I don't know what my name is. It gets done with and the lady says, Wasn't that something? Did you hear how



the man sang two voices at once? I said, Whoa! Jack, that's for me! The lady says, This is from the Tuvash people. It took me seven years to find out that it wasn't Tuvash, it was Tuva."

Some years later, Pena found a Tuva compilation CD at Round World Music [WER #86], and began teaching himself the basic techniques of Sygyt* (see box).

"Some clues began to come to me. There was a bridge between the oral arrangement and the natural, like ABCs and stuff like that. Basically it's variations of vowels and consonants. Vowels are just combinations of the fundamental tone, the tone you're talking or singing. Some of the overtones are louder and some of them are softer and that's what makes the difference. And there's what I call the Wolfman Jack technique, which is where you put an edge, you constrict, you push hard here and you constrict here so it's [singing a sweet, bar- baric duet of flute and slack-stringed fuzz bass]."

Soon Pena was working höömei into his performances. One night, in one of those San Francisco coincidences, he heard that one of the first US tours by a Tuva troupe was in town — "I got down from the stage and this stranger comes up to me and says, 'Hey man, the guys you sound like are going to be in town in two days.'" Ecstatic, Pena attended the concert, then shocked the lead musician, Kongar-ool Ondar, by throatsinging a traditional song for him. In what must be one of the broader cross-cultural leaps, the two singers became close friends.

Kongar-ool insisted that Pena come to Tuva to participate in Höömei '95, UNESCO's international throatsinging competition. Pena lacked the money for any such journey ("Whenever you can show me a bank that a blind guy can rob, man, I'll be glad to go!"), but with some finagling and the support of Ralph Leighton and the Friends of Tuva (below), he made it to Tuva and won first place in the kargyraa* division.

Pena's an excitable, enthusiastic guy. In conversation, he jumps topics like a flying squirrel, stops in midsentence to sing, fiddles with his mixing equipment, hits an occasional lick on his National guitar, leaps to his feet to jam one cassette after another into a tape player. At one point, finger poised over the Play button, he tells us, "I love this song even if I wrote it. It's called 'Tuva Farewell' and it's got a kind of horse-beat to it because the Tuvans are into horses." As the tape begins, we hear Pena dedicate the song "to Huddy Ledbetter and Oidupaa, two great bluesmen."

A Tuva bluesman?

"Blues is blues. A Tuva friend of mine wrote this next song. It's about this guy that just got stabbed and his soul is saying like, 'What an awful thing I had to die. My firends, don't avenge me. Let the killing stop here.' And then the soul goes away; only the moon is there to hear. If that ain't blues I don't know what is." ⊕

Huun-Huur-Tu (p. 94). Far left.

Tuva Throatsinging

From *Deep in the Heart of Tuva*, p.94

Sygyt

Tighten your throat, imitate the voice of Kermit the Frog and sing "ur-ee-ur-ee." Traditional Tuva descriptions: an imitation of the gentle breezes of summer; the songs of birds.

Höömei

Tighten your throat, imitate the voice of Wolfman Jack, and sing "oo-uh-oo-uh" for the rhythm. For the melody, make your tongue move for-

ward and backward. Traditional description: wind swirling among rocks.

Kargyraa

Starting with your normal speaking voice, tighten your throat and imitate Popeye. Once you get the low tone (an octave below the note you started with), sing "uh-oh-oo-ah." Traditional descriptions: howling winds of winter; the plaintive cries of a mother camel after losing her calf.

The Hundred Thousand Fools of God

(Musical Travels in Central Asia & Queens, New York). Ted Levin. Indiana University Press, 1997; 384 pp. \$35.

In Central Asia, where seventy years of Soviet rule collided with regional nationalities and customs, the impact of politics, severed roots, and changing values (in particular, the dominating importance of cash) has made the past unattainable.

Musicologist Theodore Levin candidly journals his search for religious and cultural music, along with his frustration at what he discovers. His interviews with local musicians interlace picture-postcard anecdotes of a foreigner who is struggling with unsavory local customs (vodka at 10:30 in the morning) and dense analyses of social and political histories. **The Hundred Thousand Fools of God** comes with a CD that samples the region's current and ancient music. The songs make this sometimes overwhelming volume of information easier to comprehend. —Allison ("no relation") Levin



"I'll tell you the truth — compositions that I wrote, that had my name attached to them, were always rejected. I had to hide my arrangements under other peoples' names in order to submit them. It was the same with my poetry. I wrote a poem called "Who's an Uzbek?" A lot of singers sang the text. They brought it to the Artistic Council and the Artistic Council kept rejecting it. Once, an Uzbek girl in a veil recited my poem on television. But when she got to the line where my name was supposed to be, she didn't read it. The editor had ... forbidden the girl to mention my name because it was Malayev, and Malayev is a Jew, even though the poem was about Uzbeks.



"The living intellectual tradition of *ilm-i musiqi* that arcs backward in Central Asia through the treatises of Darwish Ali Changi (late sixteenth-early seventeenth century), Kawkabi Bukhari (late fifteenth-early sixteenth century), Kawkabi

Bukhari (late fifteenth-early sixteenth century) Qutb al-Din al-Shirazi (late thirteenth-early fourteenth century), Safi ad-Din (mid-thirteenth century) to Ibn Sina (late tenth-early eleventh century) and al-Farabi (mid-tenth century) has come to an end in Transoxania. It survives now as an object of historical inquiry, like an ancient language, in the curricula and research plans of academic institutions where scholars study the musical past.

"It is not that musicians have stopped thinking about music. On the contrary, Ma-ruf Xaja, like many of the musicians I know, is an endless font of ideas that concern the relationship of music and poetry, music and religion, music and ethnicity. But these ideas stem from a different kind of thinking than the scientific rationalism that permeates *ilm-i musiqi*. It is thinking that is more mythological than logical, more concerned with the power of music to convey affect and meaning than with the elaboration of rational systems and schemata.

Deep in the Heart of Tuva

(Cowboy Music from the Wild East) 1996; CD & 64 pp. book, \$19.95 (\$23.95 postpaid). Ellipsis Arts, 20 Lumber Road, Roslyn, NY 11576; 800/788-6670.



While there are plenty of Tuvan recordings available and certain artists have their followings, I suggest **Deep in the Heart of Tuva**. On it you hear a variety of performers and styles, including Paul "Earthquake" Pena throatsinging the blues. Ellipsis Arts comes through once again with a gorgeous CD-booklet that puts a face to the voice. This small but exhilarating package contains traditional stories, vibrant photos, commentary about cultural highlights such as Tuvan wrestlers' dance of the eagle and homes festooned with inflated sheep cecum, and, yes, pictures of really cool postage stamps. —AL

"Q. How do you prepare to throat sing? When you perform *höömei*, you must be in a good state of mind. Your spirit must be in a very uplifted mood; your soul, your inner spiritual voice, must be strong. It's not simply singing. When you perform *höömei*, that which you want to express must truly come from within, from your soul. —*Deep in the Heart of Tuva*

Tuvian Singers & Musicians

Westdeutscher Rundfunk. 1993; \$16.00 (\$2.50 shipping first item, 50¢ each additional) from Round World by Mail, 591 Guerrero Street, San Francisco, CA 94110; 415/255-7384, fax 415/255-8491.

Huun-Huur-Tu (The Orphan's Lament)

Shanachie Entertainment Corp. 1994; \$16.00 from Round World by Mail.

Tuvian Singers, an anthology of *höömei* and other Tuvan songs, both nomadic and contemporary urban. **Huun-Huur-Tu** was recorded in Moscow and New York by a popular touring Tuvan group. They are two of my favorites. Listen for the sound of the *dazhaanning khavy*, a rattle made from a bull scrotum and sheep kneebones. —PW



Tuva—Shamans and Spirits

1996; \$30 postpaid. TRA Films, P.O. Box 1119, Point Reyes, CA 94956; 510/649-1485, fax 510/649-9719.

Visits a group of American and European shamans at Kyzyl, capital of Tuva, to participate in and perform rituals not seen in public since before the Soviet take-over more than fifty years ago. —MKS

King of the Delta Blues

1991; \$15.95. Yazoo.

Founder of the Delta Blues

1995; \$15.95. Yazoo.

Digital remasters of recordings made by Charlie Patton between 1929 and 1934, featuring both his "natural" voice and what Paul Pena recognized as Delta-based throatsinging. —MKS.



Friends of Tuva Newsletter

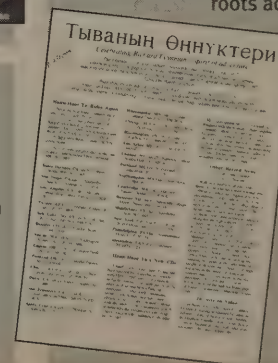
Send a self addressed stamped envelope to PO Box 70021, Pasadena, CA 91117.

Tuva Trader Online

www.adams.patriot.net/~eslone/tuva.htm email: fot@lafn.org

Subscribe (or get online) to hear about Tuvan recordings, Tuvan concerts, grassroots actions related to

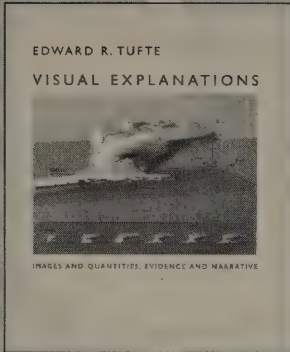
Tuva, physics, and Feynman's exploits, or to get a set of genuine *kazhyk* (sheepbone dice). Kitchy, obsessive — and yet broadening, in a fanclub kind of way. —AL





Visual Explanations
(Images and Quantities, Evidence and Narrative)

Edward R. Tufte. 1997; 156 pp. \$45 postpaid. Graphics Press, PO Box 430, Cheshire, CT 06410; 203/272-9187.

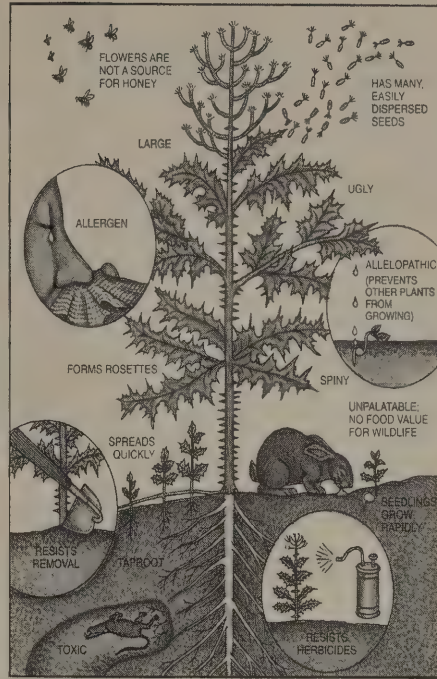


Edward Tufte's third volume focuses on pictures of verbs. (The two earlier volumes were about pictures of numbers and pictures of nouns.) Another finely produced book from his own publishing company, **Explanations** has as detailed and informative an analysis of visual communication as the others.

Tufte's eclectic examples of design strategies span some 500 years (beginning with inimitable Albert Durer). The historical examples are the most inter-

esting, though it's odd that in this age of brilliant graphic communications, with images such as those collected annually by the Graphis Press (Zurich), Tufte references so few of these. But what he does select he adapts to his thesis perfectly: Tufte's concern is with concept, and since visual explanations are often used to reach conclusions and make decisions, "there is a special concern with the integrity of the content and the design." —Jon Goodchild

"Many of our examples suggest that clarity and excellence in thinking is very much like clarity and excellence in the display of data. When principles of design replicate the principles of thought, the act of arranging information becomes an act of insight.



Rather than simply being an inventory or parts list, this confection portrays verbs as well as nouns. This superb design blends words and images into a memorable and distinctive account.

The WPA Film Library of Stock Footage

The WPA Film Library, 16101 S. 108th Avenue, Orland Park, IL 60462; 708/460-0555. www.mpimedia.com/wpa.

A visual paradise for serious researchers and pop culture junkies alike. The **WPA Film Library** carries more than 40,000 hours of stock and archival moving images, in every imaginable category, for license — a truly



mind-bending array of footage. The Chicago-based company's website features two new search engines, The Think Tank and WPA Database, that deliver easy access and a very helpful hand in navigating their massive holdings, with still images and downloadable QuickTime sample clips. Filmmakers, advertisers, and television and multimedia producers will find this resource invaluable. History lovers, movie buffs, and webcrawlers will find it fascinating. —Deanna Quinones

A partial index of WPA's footage:

- Agriculture
- Appliances
- Beaches
- Berry, Chuck
- Bridges
- Canoeing
- Castles
- Cheerleading
- Countryside
- Fjords
- Flowers

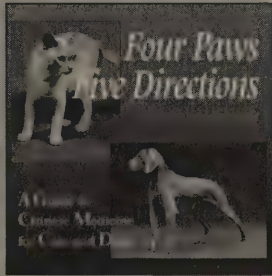
- Gangsters
- Goats
- Hairstyles
- Linoleum
- Noise Pollution
- North Carolina
- Norway
- Nudism
- Rolling Stones
- Ships
- Teenagers
- Trick Films
- Windmills
- Zeppelins

1930 - 1934

Four Paws Five Directions
(A Guide to Chinese Medicine for Cats and Dogs)

Cheryl Schwartz. Celestial Arts Publishing, 1996; 406 pp. \$24.95.

I have treated dogs with acupuncture in my own Chinese medical practice; this is the best guide I've seen for both the holistic veterinarian and the holistic pet owner. It's very practical and amusing. It takes you step by step through diagnosis and treatment of many of the common ailments that your favorite canine or feline friend may be suffering from. Treatment plans include dietary therapy, nutritional supplements, herb treatment and acupressure. The book includes acupuncture charts and case histories from the author's practice.
—Raymond Himmel



“When I examined Sylvia, she was very cautious with me. When I tried to touch her around the rib cage she cried out and her stomach was very noisy. When she burped in my face it smelled quite foul. The association points of the liver, gall bladder, spleen and stomach were extremely sensitive and her tongue was red in color with a yellowish moss on it.

My diagnosis was liver fire and stagnation. It was probably attributable to the anger of her puppyhood abuse, or to

the fatty, dried foods she was fed. Because the situation had gone on for such a long time, the fire was beginning to consume her fleshy substance, underlying blood stores and tongue coating, making her thin, dry-eyed and ready to fly off the handle at the least provocation.

I treated Sylvia by first clearing the liver fire and then breaking up the stagnation. Later she was given herbs to strengthen her blood and qi.

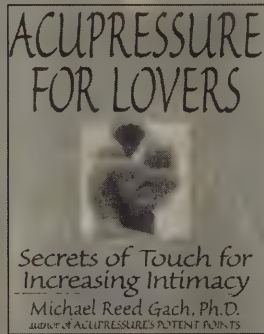


Acupressure Points — Large Intestine.

Acupressure for Lovers
(Secrets of Touch for Increasing Intimacy)

Michael R. Gach. Bantam Books, 1997; 304 pp. \$16.95.

Generalizations are odious, of course. Nonetheless, I think it's safe to say that there are two kinds of people in this world: serious-minded souls who read instruction manuals cover-to-cover before they undertake a project; and those folk who are born tinkers. The latter may find the format of *Acupressure for Lovers* a bit off-putting. The book is a step-by-step manual that blends the traditional Western obsession with how-to books with Eastern practices such as acupressure, Tantric sex, and yoga. Its nearly three hundred pages are devoted for the most part to instructions, illustrations, and cost-benefit analyses of various sexual techniques. There is lots of practical advice on sexual arousal and satiation here. The problem is with presentation: the sexual adventurer who has already planned out the route may become impatient with information,



however valuable, when it's arranged as a series of exercises designed for sexual healing. And perhaps unavoidably for a work that draws upon traditional Eastern cultures for its inspiration, *Acupressure for Lovers* appears to have a very strong bias towards heterosexual sex in general and penetration in particular. Like the cellophane-wrapped dossier that comes with a new computer, this book may be used best when it's added to your reference library to be consulted should the need for troubleshooting arise. —Patrizia DiLucchio

“When you touch or suck your partner's penis or vagina, you should give an equal amount of attention to the whole surface of the genital organ. Overstimulating one area can lead to problems. For instance, when a woman masturbates, the primary stimulation may be the clitoris, which corresponds to the kidneys and bladder. Excessive stimulation around the clitoris can tax the kidneys and possibly cause a bladder infection, water retention, or weight problems. The reflexology zones in the vagina are mapped out the same as the penis, except in reverse order. Thus, when the penis fits snugly into the vagina, these reflex zones match, creating a powerful connection between both bodies. During intercourse, all of a man's and a woman's genital reflex zones are in contact, creating one of the most pleasurable ways to heal all parts of the body.

CV 1: Inner Meaning
Location: At the center of the perineum.
Benefits: Touching enhances orgasm and benefits the reproductive organs. It relieves pressure in the genitals and rectum, impotence and premature ejaculation.



Pharmako/Poeia
(Plant Powers, Poisons & Herbcraft)

Dale Pendell. 1995; 288 pp., \$16.95 (\$18.95 postpaid) Mercury House, 201 Filbert Street, Suite 400, San Francisco, CA 94133; 800/998-9129.

This is a book about danger: dangerous knowledge, even more dangerous ignorance, and dangerous temptations by the seductions of addictions, both psychic and cellular. It is a book which requires that one not be titillated by romantic ideas of self-destruction. I hope and believe it will benefit human beings and the plant world too. It is not for everyone — but neither is mountaineering. —Gary Snyder



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A well-developed plant person.

“There were many reactions against the tobacco plant as it conquered Europe. In the seventeenth century possession of tobacco was a capital offense in Russia, was prohibited in many parts of Germany, and was punishable by torture, beheading, hanging, quartering, or crushing in the Ottoman Empire.

“The Plant

All the treachery of our beloved poisons is evident in this plant. It is a stimulant, a tranquilizer, a narcotic, and, if we are to believe the ethnobotanical reports, a hallucinogen. It is also the most toxic plant regularly used by human beings. Tobacco is a model of ambiguity: healer and killer, ally and seducer. As poison, it is the type.

Spin off, keep them back. Calm my fears, I will speak.

Tobacco is the primary shamanic plant of the New World. Within this plant are prototypes of all the lessons of the Poison Path. You could learn them all from this one plant . . . if it didn't kill you first. *And it will get you, if you play with it. Maybe you chip, nip, lick around the edges, but it will get you, if you keep it up.* If you can't kick a tobacco habit you are no doctor, and had best not proceed.

“Divination

Almost all of the early accounts of Indian tobacco use published by Europeans mention its use in divination: in capnomancy, spodomancy, and,

through the trance state, oneiromancy. One method of spodomancy involves scrutinizing the shape of the ash on the end of a huge cigar: seeing whether the ash is straight or curved. Capnomancy involves watching the column of smoke from a clump of burning tobacco and seeing in which direction it veers. But by far the most common method of divination is by oneiromancy, by the dreams and visions experienced while under tobacco-induced trances and comas. Those returning from tobacco trances speak with the voices of the gods themselves.

Psilocybin Mushrooms of the World
(An Identification Guide)

Paul Stamets. Ten Speed Press, 1996; 245 pp. \$24.95.

If you are going to buy one book on psilocybin mushrooms, get this one. It is up to date, comprehensive, and a beautiful object in itself. There are excellent photographs, and detailed descriptions of the many species (several of them new, includ-

ing the extremely potent *Psilocybe azurescens*). There is an easy-to-use key to identify the dark-spored mushrooms to the genus level. Sadly, there is no specific key. But with the

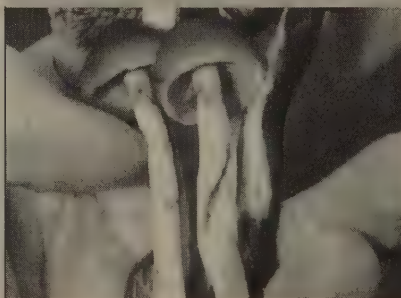
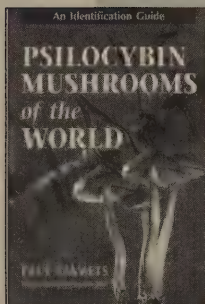
photographs, and Paul Stamets's notes on the six distinctive habitats, I have found identification to species level fairly easy. In addition to the technical material, including a colorful graphic plot of the psilocin/psilocybin/baeocystin content of twelve *Psilocybe* species, Stamets has included some of the best “Tips for Good Trips” advice I've ever read.

—Dale Pendell

“As the dosage increases, the need for ritual becomes increasingly important. Working within a ritual setting gives structure to the experience and progresses events along a positive path. Ritual can become a safeguard if the going gets rough—it can help lead you through the experience and make it profoundly meaningful. After repeated sessions, the ritual becomes a psychological road map, providing a framework for safe trip-

Psilocybe azurescens, one of the most potent species in the world, exhibits an unusual bluing reaction due to its high indole content.

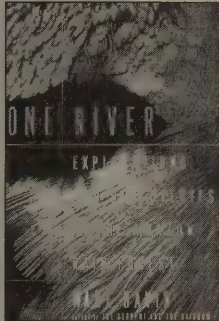
ping. Rituals are built from the lessons learned from previous good experiences. But at some point, for the shamans amongst us, being safe is not the priority—pushing the envelope to new revelations is.



One River
(Explorations and Discoveries in the Amazon Rain)

Wade Davis. Simon & Shuster, 1996; 384 pp. \$25.

This year's favorite book among plant people of all stripes, the biography, **One River**, details plant explorer Dr. Richard Evans Schultes's fieldwork in the Americas from the 1930s to the present: his grad student adventures with the Kiowa and their peyote ritual; his early discovery of sacred mushroom use among natives of Oaxaca, Mexico; and all sorts of science, tradition, and anecdotal highjinks with Amazonian tribal people.



Author/anthropologist Wade Davis is an animating, meticulous writer, weaving in tales of his own field research with the late Tim Plowman, another ethnobotanical hero. The inside story on rubber in WW II, coca, plant mysticism, and the tragic price of "civilization" in the Amazon intrigue and disturb, as we follow dedicated botanists picking up precious, disintegrating threads of nature and culture. This is a really fine story.— Kathleen Harrison

pitch come alive. move toward him, and disappear. In a pool of colored light.

“ With the disease each day making more of his body numb and useless, Schultes faced a river trip of more than seven hundred miles. There was no option. Abandoning his aluminum canoe in favor of a larger river launch, he and Pacho left La Pedrera after a day, bound for Manaus by way of the Rio Japura and the Solimoes. The passage took nine days of steady running. When finally they arrived in Manaus, on the night of July 24, Schultes could barely walk and had to be supported by Pacho on his way to the hospital. There Schultes got hold of a syringe, leaned how to use it, and bought enough thiamine to get him through a few weeks.

On his way into town from the docks he had noticed a fine riverboat belonging to the American Chicla Company. That night he dispatched Pacho to make inquiries, and by morning everything was arranged. Within three days of arriving in Manaus, Schultes was back on the river headed for the Rio Madeira. His goal was the savannah at the headwaters of the Marmelos. Three years before, when he had come down the Madeira from Bolivia, low water had prevented him from reaching the home of the rare endemic *Hevea camporum*. He was not about to let beriberi get in the way of a chance to secure flowering specimens. On July 31, their first day on the river, he and Pacho made collections from twenty-four different trees of *Hevea spruceana*.



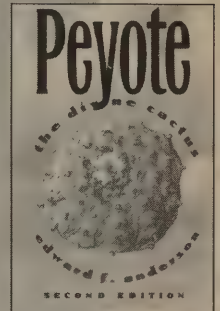
“ In turn, through dance, the Tanimuka saluted each animal of creation. First the young boys adorned as monkeys and carrying leafy branches mimicked the lithe movements of primates scattering through the canopy. The tapir dance was slow and lumbering, the one dedicated to the ant eater startling in the realistic depiction of the costume. The movements of the deer dance were graceful and rapid, darting steps that perfectly captured the frightened and nervous character of the animal. The dance of the wild bee was accompanied by a low buzzing drone. That of the fruit bat was sung with unexpected beauty, a high chant, squeaky and shrill like the voices that emerge from caves. The most powerful dance of all, the one heard by Schultes just as he took a dose of *ya-hee* snuff, was that of the jaguar. As he watched the nimble dancers pounding and whining, snarling like cats, he saw the masks of wooden teeth, glass eyes, and whiskers of black

Peyote
(The Divine Cactus)

Edward F. Anderson. University of Arizona Press, 1980, 1996; 272 pp. \$17.95.

Called “the diabolical root” by the early Spanish friars, peyote has been an important part of New World religion for thousands of years. Peyote was also the first of the New World hallucinogens to be investigated botanically and chemically by Western scientists.

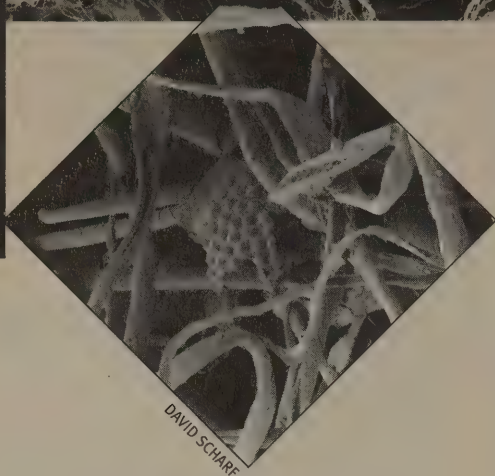
Peyote is the best single book on the subject. Edward Anderson traces peyote's late nineteenth century diffusion north from Mexico into the United States, the evolution of the Native American Church, the botany, chemistry, and pharmacology of the *Lophophora* genus, and even provides a very up-to-date summary of peyote's present legal status. There are other books that go into each of these areas in more detail, but this is the most comprehensive by far, as well as the most readable. Enough said.— Dale Pendell



“ Peyote holds a profound place in the cultures of Native Americans. As Albert Hensley, the great Winnebago peyote leader and missionary, so clearly stated: “Our favorite term [for peyote] is ‘Medicine,’ and to us it is a portion of the body of Christ, even as the communion bread is believed to be a portion of Christ's body by other Christian denominations. It came from God. It is a part of God's body. God's Holy Spirit enveloped it. It was given exclusively to Indians and God never intended that White men should understand it, hence the folly of any such attempt.”

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Richard Schultes taking tobacco snuff, 1952.



DAVID SCHARF

Above:
Dust from
under Penny's
bed (hairs,
rug fibers
and, in the
center, part
of an insect
eye).

The new news is, of course, that we owe our existence to 2,235 Whole Earth lovers who responded to last year's letter with over \$139,000, kick-starting our revival. Thank you.

Thank you, thank you. The *New York Times*, impressed, ran an article on the front page of the financial section marveling at Whole Earth's audacity and devoted readers.

Our subscribers' generosity was matched by grants from the Center for Ecoliteracy, Compton Foundation, Foundation for Ecology and Development, Marin Community Foundation, and Sacharuna Foundation. We're hardly cruising, but there's robust hope: a new board forming, new fundraising plans, new editor, publisher and staff looking ahead with a bit of faith. We palaver about you the reader, who you are, how we can serve you, and how much we can ask. Since our finances intertwine, we hope you consider this a partnership. We hope readers might help us find the right newsstands and stores, and encourage their proprietors to order a few copies. We hope you would lobby the local library to carry the mag, or give the library a gift subscription. Hats off to our subscribers for their heroic patience. We feel exceptionally rich, not yet in money, but in reader-ship angels.

New Home

The sweet news is our new location at the Falkirk Cultural Center, a National Historic Place in San Rafael. Gail Stefani was our postmodern Iris

(Greek rainbow goddess, bringer of divine messages). She cleans both Falkirk House and our old Gate Five Road building, and alerted us to Falkirk after hearing staffers bemoan our inability/unwillingness to keep up with the rents on Gate Five. Software firms have moved into the old docks and industrial buildings, downloading their vast energies and booting up real estate. The auguries probably spoke much earlier: when Gate Five owners paved the volleyball court and the renegade houseboat community was quarantined into a mudflat neighborhood.

Falkirk, a Queen Anne Victorian built in 1888, has curved bay windows that now shimmer from glass warp, stained glass windows, ornate redwood, ash and oak paneling, coffered ceilings, an art gallery (now featuring photographer Linda Conner [WER No.



85], the Marin Poetry Center, building offices, and our two-and-a-half rooms, which were once the servants' quarters. Our lodgings are not so fancy (though the windows slide downward into the walls). Built by widow Elsa Parks, then bought by the famous Dollar Line family, the magnates who shipped Marin County's finest redwoods and Doug firs to the Orient at the turn of the century. Falkirk was named after the Dollar family's hometown in Scotland. (Elsa Parks has been slighted.)

When our revival time came, we expanded the staff, pushed some fine City folks to smaller quarters,

crammed the parking area and boxed in the communal photocopier with our desks and staff. Carol Adney, Falkirk's director, accommodated our growing pains with appropriate aplomb. It feels right for Whole Earth to be meshed into a real city and community. There are even a lawn for volleyball and gardens for parties.

Outside the mansion, a boy buck sprouts his first antlers and two older does browse among the Mediterranean broom. On the trellis of the elegant rundown greenhouse (a building we all lust to restore), a mockingbird holds court, alternately mimicking emergency vehicles and starling songs which also imitate other birds. Regularly, a blind person, training dog, and teacher walk by. (San Rafael has one of the top schools for guide dogs and their human companions). Homeless

San Rafaelians stretch out by the pond under the magnolia or monkey puzzle trees.

Each morning, Wendy shows up in an old blue Datsun, clambers out yodelling like you hear in Algeria. Fifteen cats emerge from under the house and who knows where else. Wendy doles out food in plastic dishes hidden like Easter eggs under bushes. Wendy's a member of Marin Cat Rescue. They capture, neuter, and seek homes for feral cats. If they're too wild, she returns them to

their neighborhood and feeds them. She is field sergeant for 100 cats in San Rafael, and 120 more at a nearby cat reserve. She's donated \$30,000 over the years of cat love.

In short, our quarters are snug, but the neighborhood flows with characters and odd events that keep our magazine minds anchored to everydayness.

New folks

New publisher Alex Gault comes from Montreal by way of Nova Scotia, where he served as associate publisher of the *Shambhala Sun*. He snacks on candied ginger. Design director Jon Goodchild, originally from England, helped initiate DigiQuest, which trains



Left to right:
Alex Gault, Publisher;
Jill Whitcroft, Editorial Intern;
Jangshi Lai, Production Assistant;
Mike Stone, Managing Editor;
Jon Goodchild, Design Director;
Peter Warshall, Editor;

floating
David Burnor, Acquisitions Editor;
Kim Koettel, Office Manager;
Liz Thompson, Assistant Editor.

Not shown:
Meg Clark, Stacey Squire, Pamela Netzow, Sirus Falkan.

Below:
J. Baldwin - Legacy Editor



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seniors and schoolkids in computer and multimedia skills. He helped us 20 years ago, drawing diagrams for the watershed issue (CQ No. 12), and now has his own design company, NVision3. He's assisted by brash Sirus Falkan, who combines techno-wizardry with barbs that stun and offer a healthy perspective. Jon discovered Jangshi Lai (not a kid or elder, but a sophisticated mother) interning at DigiQuest. ("Intern" is clearly a misnomer for an expert-in-process.) Mike Stone, who watchdogged Gate Five during our long, fog-n-gloom interim, has come home to the editorial masthead. Liz Thompson rode shotgun when the staff dropped to two (with a break to tend a cherry orchard in Michigan's Upper Peninsula). She's now back copyediting, guiding interns and, we hope, writing to her heart's content. Kim Koettel left Rainforest Action Network to manage our office, spending evenings copping hard-to-find tickets to John Fogerty and other live concerts. Our other "intern," Jill Whitcroft, just started an alternative money network (Coastal Currency) along the Marin coast. Members trade "sand dollars" for goods and services. More on this in later issues.

Transitions

Legacy editor J. Baldwin is off to Rocky Mountain Institute for the summer. Ty Cashman and Jerry George have departed the board after heroic service. Ty was Whole Earth's white knight for two years, persistent as the I Ching, finding sponsors to bring us back. He and Mayumi Oda (still on the board) are eyeing Hawaii. Jerry rejoined

us in crisis transition and stayed on until the ship was made seaworthy, for which we are, once again, grateful. He's developing a major museum on the history of the car. We're evolving a new page design. John Sullivan and Dennis Gallagher of Visual Strategies (San Francisco) suggested a real cool, high cut A5 trim. Unfortunately, only the Brits and their former colonies' printers do it. Visual Strategies will critique the Dickens out of this issue and shape up our layout, typography and Quark styles. We welcome all comments from readers as well.

We have a year's worth of people catch-up. The oldest of the newest Point Foundation board members is David Katz, an old Farallones compadre who started and became CEO of the best US ag info source (AgAccess, MWEC, p. 99). He's joined by Danica

Remy, whose two- and seven-year-olds (Drew and Dylan) served as my pillow-wielding alarm clock right after I moved here from Tucson. Her life list overwhelms, marked by smartness and fun, but includes great adventures with the WELL, the Global Business Network, and the Mill Valley Film Festival. Rachna Sachasinh moves us clearly onto the whole Earth. Fluent in four or five languages, she owns a fair-trade import business for artisans in Mexico, India and Egypt. She's worked with Vandana Shiva on trade policy and agriculture, investigated organic veggie cultivation as an alternative to tobacco in Kentucky, and served on a team to reduce pesticide use in textile crop cultivation. Slowly, slowly, we're reforming, with a hawk's eye scouting the turquoise of the planet. —PW ☺

Revival due to...

Here are just those we can recall who've volunteered everything from transcribing tapes to helping us move, holding our hands, and inspiring us with insight, teaching us more about fund-raising and publishing, and/or, and ...

- Carol Adney
- Judi Bari
- Albert Barsocchini
- Boleyn Baylor
- Susan Benson
- Steve Bjerklie
- Dennis Breedlove
- Jerry Brown
- Mimi & Peter Buckley
- Kelly Cash
- Susan Clark
- Winslow Colwell
- Jim and Pat Compton
- Linda Conner
- Stuart Cowan
- Lavinia Currier
- Joanna Davis
- Diane DiPrima
- Eric Douglas
- Karren Elsbernd
- Matisse Enzer
- Rick Fields
- Nora Fisher
- Kristin Fairchild

- Dylan Remy
- Gamley
- Wendy Glenn
- Martha Glessing
- Michael Gliksohn
- Ed Grazda
- Claire Greensfelder
- Diana Hadley
- Robert Hillman
- Daniel Imhoff
- Quincey Tompkins Imhoff
- Leslie Jackson
- John Kelsey
- Roger & Martina Kent
- Marty Krasney
- Sybella Kraus
- Joanne Kyger
- George Lawson
- Ralph Leighton
- Brian Levin
- Amory & Hunter Lovins

- Norine MacDonald
- Jerry Mander
- Malcolm Margolin
- Jack Mayberry
- Don Michael
- Elise Miller
- Art Mills
- Gayle Pirie
- Michael Rafferty
- Robert Rex
- Steve Rogerson
- Joel Solomon
- Drew Remy Soltis
- Dieter Soltis
- Linda Sparrowe
- Sue Stallcup
- Gail Stefani
- Vaughn Stratford
- Lee Swenson
- Dean Thompson
- Terri Thornton
- Jennifer Weaver
- Sallyanne Wilson



Ty Cashman, White Knight

Contributors' Guidelines

Longish Pieces

Essentials: Payments for articles, photographs, illustrations and other longish pieces are negotiated case by case. Your name and contact info must be on the front page. We love Word disks but will take submissions in any legible form.

Submissions: We'll send a noncommittal postcard when your manuscript has arrived. We don't return manuscripts unless you include a self-addressed stamped envelope. If we like it, we hang on to it, sometimes 'til two moons rise in the same dawn. We wait for the perfect circumstance, which sometimes doesn't arrive.

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A few tips from the editor: We like your personal voice, intimate, a fun conversation with an attentive friend but not overly confessional or self-indulgent. We like ideas, thoughts and events to appear to stand independent and clear of the narrator. Candor: speak right to our ears, open, confid-

ing everything from gossip to wisdom. A hard road to navigate. Don't inflate a short piece into a long one. Don't send us a variation of an old idea. Show us you did your homework. Don't rant against anything or anyone without very solid suggestions for fixing the rantee.

Be prepared to violate the above guidelines for elegance or to present a compelling point.

Don't be crushed at rejection. We reject our own submissions too.

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We pay \$40 upon publication.

Only great stuff: We let bad, mediocre, wimpy, mushy, rehashed and poorly crafted books and other items die their own deaths. Don't waste time and energy on items you only complain about.

Why this item provides skillful means for mind, body, soul, community or the planet. First, ask yourself: Is this the only book or tool available for this purpose? If so, say so, especially if it's the first to offer a new idea, thought, technique. Second, if other books or tools are already out there, and the new item makes no great difference, forget it. If it provides upgraded skillful means, a greater intimacy and sense of caring or

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Beware the backcover blurb! Write with an honesty that makes you squirm. Reveal your voice and all its slangish, idiomatic candor. Get out of the way of the book or tool.

Let the excerpts speak: They convey the thought or craft of writing. If you send us a disk, please type the excerpts, noting the page numbers. Or send photocopies with excerpts marked. Don't send us your copy of the book!

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The CoEvolution Fund

Since we're running skinny, the editorial department started a new restricted fund for the sole purpose of enhancing special project research, art, and editorial content. We've downsized for the near future to ninety-six pages per issue. We thank the Jennifer Altman Foundation for helping with the medical waste and persistent organic pollutant section — we grew eight pages (to 104 pages) because of their generosity. Our next issue focusses on environment and religion: tools, ideas and practices.

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Whole Earth has always relied upon the generous support of its readers. Over the last year, committed members of the Whole Earth community have devoted a tremendous amount of energy and time into developing a sound foundation for the magazine to thrive well into the future. This issue in your hands represents the beginning of a new era for Whole Earth. Nourishing our readers with the practices, tools and ideas useful to creating compassionate and responsible communities is our priority.

To provide the quality of information and perspectives that you have come to expect, we will continue to depend upon your financial contributions. We gratefully thank all those readers and friends who have given in the past. Particularly, the following people deserve special thanks.

Would you consider joining the folks who make this magazine unique? You can support us at any of several levels:

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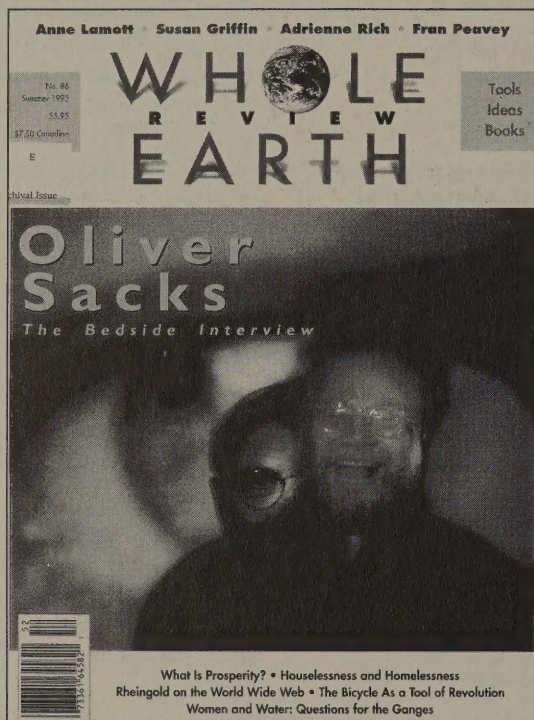
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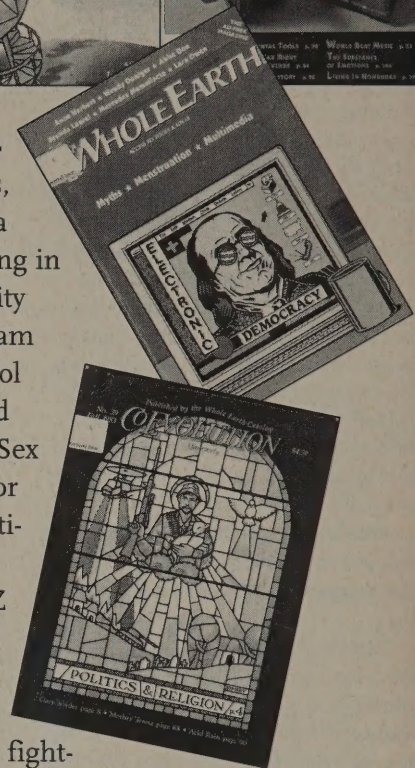
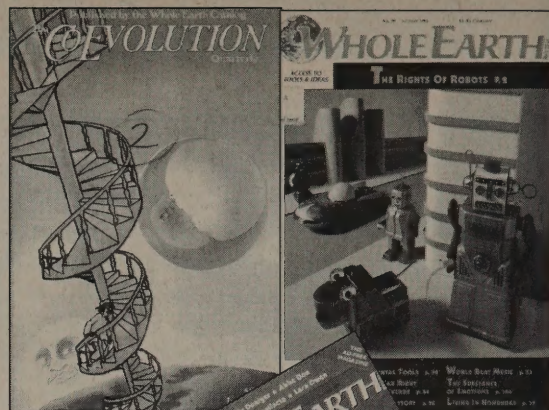
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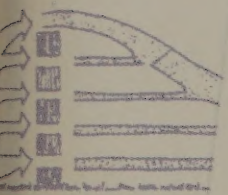
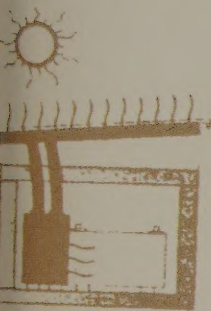
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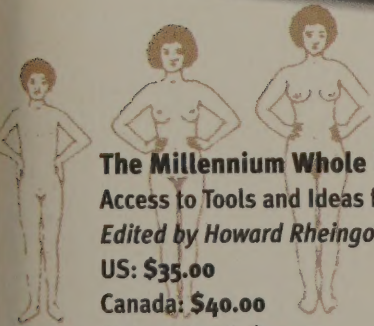
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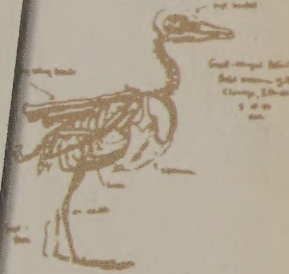
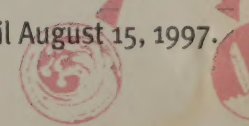
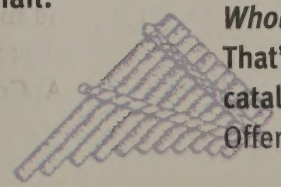
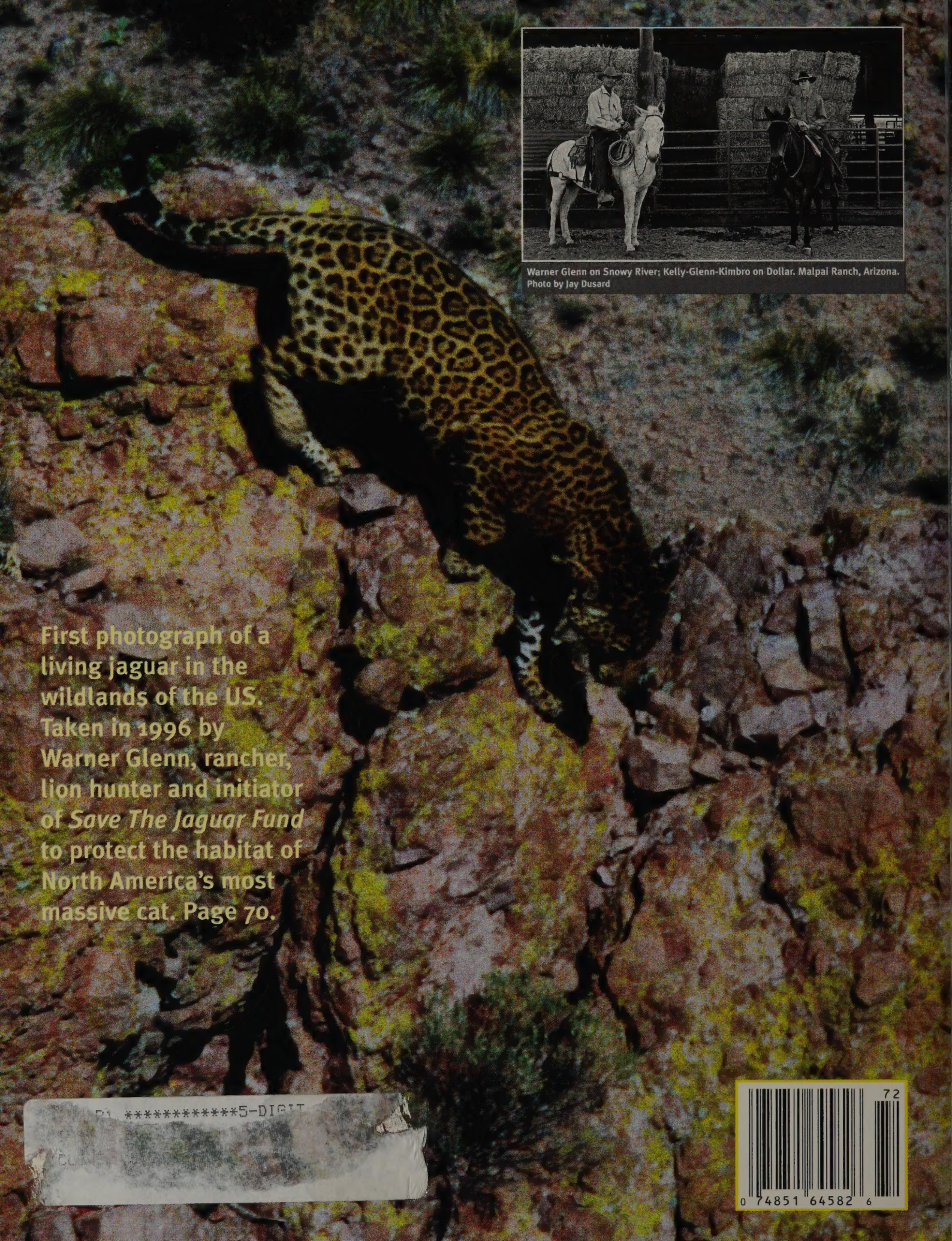


Fig. 33. Emblazoned petio sheaths





Warner Glenn on Snowy River; Kelly-Glenn-Kimbro on Dollar. Malpai Ranch, Arizona.
Photo by Jay Dusard

First photograph of a living jaguar in the wildlands of the US. Taken in 1996 by Warner Glenn, rancher, lion hunter and initiator of *Save The Jaguar Fund* to protect the habitat of North America's most massive cat. Page 70.

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